THE NO.1 MAGAZINE FOR THE COMMODORE 64

your 64 & VIC 20

FEBRUARY 1985 95p No.6

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Y64 MENU

SCOOP REVIEW!

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Singalonga SID An exclusive review of **Commodore's Music Makar** Is this the package musicians have been waiting for? *Dick Pountain*

LISTINGS

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Routine Advantures Not just for adventure programmers this set of Basic routines will make a useful addition to the subroutine library of any programmer *Malcolm Serbert*

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Keyboard Kapara Two games listings ready to be typed in end run! *Alien Attack* and *Slider*

PROGRAMMING

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Machina Coda Tutor (part 5) Continuing our definitive introduction to machine code programming, we look at maths in machine code end truth tables *Andrew Bennett*

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Languaga Lab A high level language that runs as fast as machine code? We examine a language renowned for its speed and flexibility Forth *Dave Janda*

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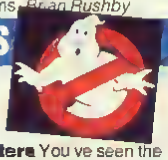
GAMES



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Ghostbusters You ve seen the film, now try a spot of ghostbusting yourself — but watch out for the Slimers! *Ian McKinnell* and *Sophie Wright*

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Action Replay Fend off MiG fighters, fire bananas at attacking apples, raid nvers watch British Telecom make a fool of itself the good the bad end the tasteless in new games software *Steve Melone*

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New VICs For Old? We check out the Commodore Plus/4 and C-16 machines Should 64 owners look twice? *Jim Lennox* and *Steve Malone*

CORE MATERIAL

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What s new for the 64?

Missives ..... **Page 11**
Meddle with your micro noisier loading an attack on that Nascom — and are Quicksilva and US Gold making a fast buck at your expense? Readers strike back!

Choice 20 ..... **Page 14**
Will **International Football** never get booted down to the bottom of the division? Only you can decide

Talkin' 64 ..... **Page 64**
What have dungeons dragons and DEC 10s got to do with 64 users? The answer is MUD

Back Issues ..... **Page 17**
Missed an issue? Our back issues department is at your service For a mere 15p postage and packing we ll rush your back issue to you

Subscriptions ..... **Page 12**
Why walk all that way to the newsagent when you could have your copy of **Y64** delivered direct to your door?

FREE READER SERVICE

Classified ads ..... **Page 64**
Buying selling or just exchanging information — it s all free on our readers classified page

WIN! WIN! WIN!

COMPETITION ..... **Page 32**
There re **25 Music Maker packages** up for grabs in our free easy to enter competition — not to mention a complete Commodore disk system to run it on!

THANKS
Y64 w shes to thank Commodore Business Machines (UK) Ltd Tomorrow s World Today (of Oxford Street) Pilot Software City (of Rathbone Place) Osborne UK Ltd

Cover Photography by Marcus Wilson-Smith

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OPEN ACCESS

Downgrade your 64(!), meet the alpine valkyries, the great Compu-Micronet debate, rent-a-game, dial-a-newsflash, the all-purpose plotter — look no further for the newest news

The Imagine Software Saga Continues

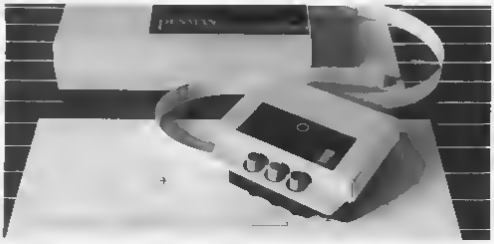
Just when you thought you d heard the last of Imagine the name lives on!

Ocean Software has bought the right to use the Imagine name and logo and has contracted eight ex-Imagine programmers to complete programs they were developing for Imagine Two of these — John Gibson and Ian Wetherburn — are known to have been working on Imagine s long awaited but never released MegaGames Ocean has also bought several completed Imagine games which were never released

Ocean was unable to comment on he plans at the time of writing but watch this space Ocean is on 061-832 6633

New from Palace Software, the software house that brought you *The Evil Dead* comes *Valkyrie 17* — a "slightly paranoid adventure set in an alpine resort

The aim of the game written by someone or something called the Ram Jam Corporation is to thwart a bunch of ex-Nazis in their bid for world domination Along with the game itself you get a series of newsphone messages on the reverse of the tape and a dossier of information The release date and retail price are not known at the time of writing but it s expected to be available by the time you read this Check with Palace on 01 278 0751



Whata lotta plotter!

This versatile little beast is a combination turtle plotter and mouse It can plot lines in three colours down to letters 1mm high sense obstacles in its path and read bar codes! It uses any size of paper (subject to the 1m ribbon cable that connects it to the 64) and accepts standard Pentel pens

The Penman Plotter is remarkably "intelligent It automatically adjusts its baud rate to suit the computer can tell when it s got tangled up in its own cable and untangle itself and will automatically locate the bottom left hand corner of a piece of paper ready to start drawing

The Penman Plotter will retail at £249 The *64* software isn t ready at the time of writing but check with Penman on 0903 209061

New Help line Number

Please note that the *Y64 Helpline* phone number has been changed to 01 636 3513 We re sorry for any inconvenience — British Telecom managed to get our helpline mixed up with *Your Spectrum*'s!

Helpline is a technical help and advice service open exclusively to *Y64* readers The line is open on Tuesday and Thursday afternoons between 2pm and 5pm *please do not call outside these times!*

The editor of Yere Kommodore? Commodore s managing director? An Oric owner? No the cardboard gentlemen in question is actually Wally Week hero of Mikro Gen s *Pyjamarama*. The game has just been releasbe for the 64 at £7 95 Ask Wally for more info on 0344 427317

Compunet And Micronet Battle It Out

The battle between Compunet and Micronet 800 for supremacy among 64 users has begun in earnest the press releases coming thick and fast

Compunet lead the way by offering free viewdata software and offering Compunet users access to Prestel for a fiver Micronet responded by pointing out that only its software enabled users to download Micronet software Ah yes said Compunet, "but Compunet users can download free direct 64-to-64 software " "That s nothing retorted Micronet "We offer a free demonstration system which people can try out before they register "Trivial replied Compunet What about our on-line art competitions?" "Huh! said Micronet "Just you wait until you see our Channel 4 advertising campaign And it goes on All highly entertaining

Watch out for *Y64's* Compunet versus Micronet review next month but in the meantime you can communicate with Micronet on 01-278 3143 and Compunet on 01-637 0942

REWRITE THE HIGH SCORE TABLES

So, you've got a Commodore You've also got enemies With the Gunshot, you'll have all the opposition cowering in corners 8-directional action and an all-in-one moulded stem allows accurate annihilation and strength to survive those all-night sessions Dual fire buttons for fading fingers (and a rapid fire version when they're really coming thick and fast). And, if you break it (and we know you'll try) our 12-month guarantee will prove invaluable Only £8 95 The Gunshot plugs directly into the CBM 64 and Vic 20

Ask about Vulcan Interfaces for the C16 and Plus 4

See the range of Vulcan joysticks and interfaces at your local stockist – we'll see you on the high score tables.

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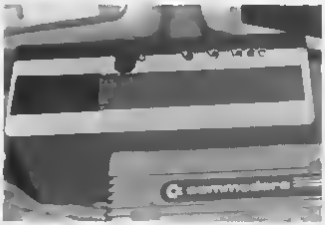
For those of you who are too lazy to build the reset switch described in issue 1 (page 57) A & Danby will sell you a neat boxed one for £7 including P&P As well as providing a reset facility the box also allows you to save a program to a second tape recorder as you load it from your datasette Details on 0780 763002

British Telecom Makes Micros Make Money

British Telecom is trying out a dial-up information service for micro users The *Home Computer Line* is a three minute recording of micro news changed twice a week to keep it up to date The trial ends in March and BT will then decide whether or not to continue the service

You can ring the *Home Computer Line* anytime on 0274 722622



The cheapest 64 modem we've seen to date is the £49 50 Intelinet 2045 It operates at 300-baud making it suitable for bulletin boards and electronic mail systems but not Compunet and Micronet and is switchable between originate/answer and full/half duplex The non-approved modem is supplied with free dumb terminal software for 64 and VIC 20 Details from Intelinet on 01-668 9647

Turn Your 64 Into A 35k Spectrum?

That is the proud invitation Whitby Computers is making with its *ZX Spectrum Simulator!* Yes for just £14 95 you too can turn your £200 CBM 64 with sprites three sound channels and hi-res graphics into a £125 spriteless beeping Speccy You don't really want to know that Whitby is on 0947-604966 do you?

Video Shops Rent Wild Dreams

New software house Wildest Dreams won't allow you to buy its software Instead you'll be able to rent its programs from video shops for around 50p per game per night That way says managing director Chris Kilburn you don't have to waste your money on games you only want to play once

The thing is Chris since we can't buy your software even if we wanted to are we to assume it's so bad we would only *want* to play it once? Find out if once is enough on 0203-663085

They Se-Kaa Here, They Se-Kae There ...

Master Adventurer is a new games label from Mastertronic which plans to use it to produce cut price adventure programs The first product under the Master Adventurer banner is Se Kaa of Assiah priced at £2 99 You are Se-Kaa your task is to free the world from the evil influence of a mutant race known as the Dark Hordes and reinstate the Wise Ones who ruled in former happier times The idea of course is to find lost artefacts to enable the Wise Ones to regain their lost powers and thus defeat the Dark Hordes

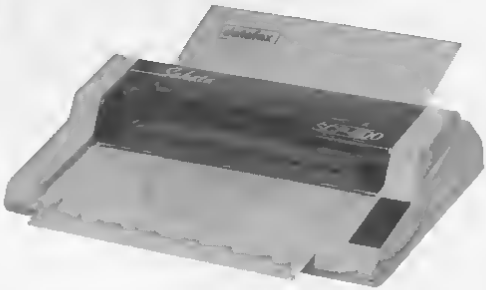
Master Adventurer will be buying original programs from individuals as well as from other software houses for release worldwide as well as preparing its own

Find your way to a phone to call Mastertronic on 01-402 3316

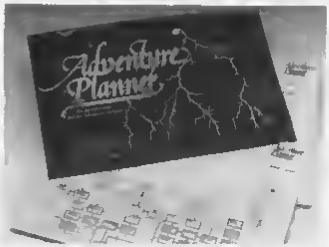
The latest releases from CBS Electronics *Breakdance* is as bad as the name suggests the others are better and *Mission Impossible* is excellent. Details from C64 on 0734 598164

Eureka!

Latest in the line of software companies seeking to increase their turnover by dangling the now-familiar big prize money carrot before the noses of potential customers The carrot in question amounts to £25 000 for the first person to solve the five-part 250K adventure Look out for our review but if you can't wait Domark is on 01-871 1136



Datafax's SCP-800 is the first A4 printer plotter to sell for under £200 With a resolution of 0 2mm the plotter can draw in any of four colours using either 210mm roll or A4 sheet paper More info on 0256-464187



Essential Padding for Adventurers

Print n Plotter Products never ceases to amaze me The company made its name selling text and graphics design pads These were basically just pads of graph paper selling at about a fiver a time Its latest product is an Adventure Planner pad This again is nothing more than a pad with lots of boxes selling at £3 95 retail £4 50 mail order Adventure players mark each location in a box and draw lines to indicate the routes between the two What amazes me is that despite the ridiculous simplicity of Print n Plotter s products they are actually very useful Order yours on 01 403 3622

Audiogenic has announced four new games Magic Stone tells of a magic stone hidden in the Transylvanian mansion of the evil Graf von Schwarzherzen which if found could turn out to be the alchemists dream — transmuting lead into gold

In Time Traveller you wake up from a deep sleep in the year 1990 alone on a spaceship somewhere in space You must discover your identity and destiny and restore the balance of time disturbed many centuries ago by the evil Graf von Schwarzherzen (see above) Magic Stone and Time Traveller are both £5 95 on cassette and Audiogenic will be awarding a Koala Pad to each of the first three entrants to solve each adventure in the shortest possible way Then join Alice in her journey through Videoland — the land of bread-and-butterflies and pies smashing caterpillars or if you prefer steer Freddie up and down ladders picking up pots of gold

Frantic Freddie and Alice in Videoland both retail at £8 95 (cassette) and £12 95 (disk) If you want to know more ask Audiogenic on 0734 484646

The Flip Side Of Anirog Software

Good news for VIC owners intending to upgrade to a 64 are Anirog s Duo Tapes The tapes which include *Kong* and *Flight Path 737* have the VIC version recorded on one side and the 64 version on the other Thus VIC owners selling their VICs in order to buy a 64 will be able to continue playing their Anirog games simply by turning the tape over

It's a pity that Anirog chose to launch the idea just as Commodore replaced the VIC with the C 16

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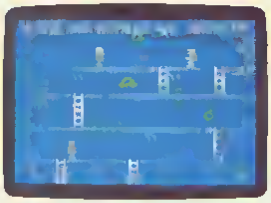
FIREBIRD

SOFTWARE

Here's a sneak look at three of the NEW games

ZULU

100 golden masks hidden in an ancient maze guarded by Zulu warriors and protected by tribal magic



MR FREEZE

Six freezer compartments to de-ice, each packed with chilling obstacles, and each tougher than the last

HEADACHE

Nervous Ned versus Head Banger in a furious quest to carry messages to the brain

Look out for these games in the FIREBIRD silver range at selected high street stores

SPECTRUM: THE WILD BUNCH BOOTY MR FREEZE TERRA FORCE VIKING RAIDERS MENACE EXODUS RUN BABY RUN CRAZY CAVERNS. **VIC 20:** SNAKE BITE MICKEY THE BRICKY **COMMODORE 64** BOOTY MR FREEZE EXODUS HEADACHE ZULU **BBC MICRO B:** BIRD STRIKE GOLD DIGGER ACID DROPS DUCK!

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Choosing the right computer is a good start — but can you find the right software?

At SUPERSOFT we're very conscious of the fact that people who spend several hundred pounds on computer equipment are looking to do rather more than play Space Invaders.

Financial planning is a rather grand name for something you've been doing all your life – making ends meet. Perhaps if Mr Micawber had used **BUSICALC** he would have been able to balance the books a little better.

For home, club or small business use BUSICALC 1 should pay for itself in no time at all; for larger companies we recommend BUSICALC 3, one of the few really valuable programs that you can learn to use in a day.

Although your Commodore 64 is a powerful musical instrument you need to be a pretty good programmer to understand how it all works. Unless, of course, you buy **MUSIC MASTER!**

To use MUSIC MASTER requires no prior musical knowledge, though in the hands of an experienced musician it will prove an invaluable tool. You don't need to know the first thing about programming either! MUSIC MASTER is the musical equivalent of a word processor, remembering the notes you play and allowing you to replay and edit them as you wish.

INTERDICTOR PILOT is a [illegible] flight simulator. Nowadays simulators are [illegible] used to train pilots and astronauts but, to be frank – it's a lot cheaper, [illegible] safer than the real thing.

Imagine if you will, late in the 22nd century, space travel is commonplace and on the outskirts of the galaxy the first war between civilizations is being fought. A shortage of trained pilots has prompted the Federation to develop a computer simulation that allows raw recruits to gain experience without paying for their mistakes with their lives. With the aid of your Commodore 64 you too can learn to pilot the Interdictor Mk 3 craft. But be warned – this is no game!

Other SUPERSOFT products include the **MIKRO ASSEMBLER** cartridge – the only assembler that is ideal for beginners yet powerful enough for the professional (most of our competitors use it!). The **VICTREE** cartridge adds dozens of commands to Basic including toolkit aids and disk commands; or on disk there's **MASTER 64,** a comprehensive package for the keen programmer.

Of course, we do also publish games programs, and with classics like **STIX, QUINX** and **KAMI KAZE** in our range we are one of the market leaders. But we most enjoy coming up with the sort of programs that are going to be in use for months and years, not hours and days – the sort of programs that make you glad that you bought a computer – and glad that you bought SUPERSOFT!

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Your castle is under siege From the distant forest come waves of attacking slimy creatures, all bent on abducting your apprentices and holding them for ransom. If the lizardmen get all three apprentices, you must yield to their greedy demands and release the spell on your treasure You cast your power bolts, annihilating the attackers with a blast of fire but still more come. Your magic power drains and you climb the tower to draw more from the shining star But beware the deadly spider If the lizardmen finally break down the castle door, you must battle them throughout the cathe And if they do kidnap your assistants, you must chase them through the woods before the creatures drag them, kicking and screaming to Lizard Lair

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Computers, like people, are fallible. They need the right combination of code and care to perform effectively in the business or the home. And that requires first hand knowledge from you to create a healthy operating environment for your Commodore 64.

Knowledge about machine language, about the lesser known qualities of the 64, about the disc drives, graphics, and about the tricks and tips to keep your 64 on line. That's why First Publishing has now launched in the UK a series of high quality books and software packages to provide a complete health care kit for your 64. Commodore 64 users throughout Europe have already found it a tonic. We think you will, too.

For a brochure on all the Commodore 64 books and software packages available from First Publishing, please fill in the coupon and send to: Amanda York, First Publishing, Unit 20B, Horseshoe Road, Horseshoe Park, Pangbourne, Berkshire.

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Or ring *Amanda York* at (07357) 5244 or Calco Software at 01-546 7256. Y641

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MISSIVES

Y64 welcomes correspondence on any and all aspects of computing a le 64. Funnies, straights, anguished pleas for help 14 Rathbone Place, London W1P 1DE

Meddle With Your Micro!

I have subscr bed to your magazine since its first issue Do you realise that yours is one of the few publ cations permitting the advertising of Backup programs? As long as you do *not* subscribe to the short sighted, childish attitudes of your competitors I shall continue to subscribe to Y64 I know there are people out there copying away for what may be considered gain and that there are real out-and-out pirates but I also real se and so must they that there is no effective method of stopping the practice What appears to be happening is that the software houses are searching for the ultimate protection I wish they d realise that no matter how much they code program errored sectors onto disks produce secondary directories and ID numbers and turbo tapes someone somewhere will break into it

I read Mrs Maynard s letter with some amusement Having just popped out of the cassette padded compiled world of the oversized overpriced white elephant I m sure she did find the 64 someth ng of a let down The Nascom referred to I remember as being unusual if only for the fact that it was principally constructed of fibre glass!

To a certain extent I sympathise with this lady s point of view Given a choice I would program in Basic on my old VIC rather than my 64 (unless using Simon s Basic etc) but given a choice between a mainframe or m ni and a 64 the 64 would get my vote every time I use a Prime end to anyone who uses a Commodore and is used to the wonderful editor I would say look no further The mainframe editor is almost as bad as the dreaded Spectrum or the corpulent BBC The Cobol language used principally is like Terry Wogan or Crossroads it never seems to end The 64 does have a rotten Basic but that is more than made up for by the editor and the Kernal You do get the opt on with Commodore Kit if a programmer is innovative enough there aren t many problems he can t circumvent because the basic equipment is all there it just needs you to get in there and get at it Witness Tape Turbo Loaders now D sk Turbo Loaders and yes even a software speech synthesiser not a little black box a program! Keep up the pioneering spirit get into your ROM interfere with the Kernal mug the Zero page meddle with your micro!

JL Masterman
Middlesborough Cleveland

PS Can anyone tell me if the dreaded Cobol is available for the 64 and whilst I hold my breath for the blow the price?

So far as I know there is no version of Cobol available for the 64 and I can t see the demand for such a product being overwhelming but perhaps someone out there knows better? Ed

Pin Problems

I m trying to hit an internal speaker to my 64 which will enable me to locate my programs on tape more easily I have found that the signal from the CN2 cassette recorder can be directed to a speaker via p ns 1 and 2 of the sanal port However with a speaker connected my programs will save correctly while giv ng out an audio signal but will not load They will load with the speaker d sconnected

David Robinson
Rotherham

The reason your programme will not load is that the BRGIN line of pin 1 of the serial bus is directly connected to the cassette read line With the speaker connected this directly grounds the signal with pin 2 Very little if any of the signal actually gets to the 6510 CIA

The easiest way to locate programs is to use the VERIFY command Connecting wires unless you are sure what you are doing is not recommended! Most of the BBC owners I know actually try to suppress the sound of tape operations which can of best be described as painful to the ear

However if that s what you want then a company called ASHBY PRODUCTS PO BOX 510 BIRMINGHAM B17 9ES offers a device which will do the job It is called REKORDAKIT 64 and retails for £5 95

Bob Turner

Credibility Gap

Will it never end? I ask 'What? you inquire

This carelese and cesselese repet tion of high software prices I go on

Yes you do go on " you say "We get such letters by the sackful

"But surely something must now be done " I continue For example Quicksilva converted *Ant Attack* for the Commodore 64 The price for the Spectrum version is £6 95 The 64 version is a whole two quid dearer at £8 95! Even US Gold who ve given us so much good software are doing the same The 64 *Beach Head* game is £9 95 the Spectrum version is £7 95!

Now that two quid difference could buy you Mastertronic s CHILLER wh ch deepite your comments (*Open Access* issue 4) is brilliant!

Back to HSP (High Software Prices) what justif es that extra two pounds? Don t come on with all that high development costs or that programming the 64 is more expensive because the simple fact of the matter is that we are being ripped off! It is enough to make you a software pirate — I m not but I can understand those who are

The Guild Of Software Houses are supposed to do this and that but one thing should be done — all software should be £5 00 no matter what the machine or how much has been spent on advertising Some I adm t will be higher priced because of costs but why £7 95 for a Spectrum game and £9 95 for a revamped 64 version?

And though I really hate to mention it how come in your first issue you said Durell had claimed its game *Scube Dive* was terrible yet your staff voted it into your Choice Twenty?

Andy Clarke
Baddesley Ensor
Warwickshire

Don t blame me — I wasn t editor then! If Quicksilva and US Gold want to explain their pricing policies through this page they re quite welcome to do so Ed

Edited Highlights

I was readir g your magazine (issue 4) today and saw what I can only describe as a thick Jock (Mrs Nellie Maynard)

I am getting really sick of people knocking the 64 This person only had the 64 for a few days and has now decided to go back to Nascom Well I for one hope she stays there the only reason she couldn t use the 64 is because she s too thick to understand it I have had my 64 for about 18 months now and I ve never had any trouble

I d like to see the Spectrum that Mrs Maynard was shown play music like the 64 Everyone s knocking the 64 so let s look at some other computers

First of all the BBC such a wonderful machine Ha! £399 worth of machine £70 for the ROM chip does Acorn really call that 32K a memory? Granted it s got a great Basic but most software is in machine code

Next is the Spectrum its users trying to find all the bugs in it Still Spectrum could bring that out as a game what keyboard? what sound? Where can I plug my joystick in? Nowhere! upgrade a Spectrum to 64 joystick disk drive printer keyboard interfaces would cost more than the price of a 64!

Next the Acorn Electron try plugging a joystick into that without an interface disk drive claims a printer it has BBC Basic try running some BBC software on an Electron and see what happens

Next the Oric ever tried to get a game to load from cassette keyboard s not much better than a Spectrum — boring

I could go on about other computers like the Dragon Aquarius Tandy Ace and lots more people buy their machine because t will do what they want I bought my machine for its games graphics music look at Summer Games Decathlon , or Beach Head people all go on about the 64K the CBM hasn t got but flip out the 64 s ROM to reveal RAM underneath at the same adorese

So why don t they enjoy their machines and keep their mouths shut about a computer they know nothing about?

James R Strang
Droylsden Manchester

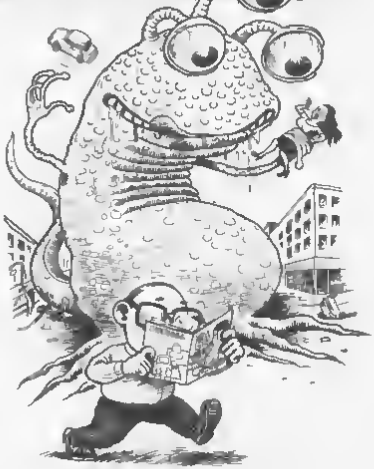
We tried to edit this a little Over to you Nellie. Ed

Commodore cop-out?

I must say that I totally agree with Mr Scot about the upgrade of the 64 s Basic Unfortunately I feel that if you approach Commodore about it all it will say is that you can buy Simon s Basic which will do the job

G Wright
Kessingland Suffolk

Subscribe to Y64 and see watcha m sin'



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YOUR OWN CHOICE CHARTS

Still no change at the top spot this month (you've got to get bored with it sometime, *surely?*) but with Daisy Thompson zooming up the chart he could be on top of the rostrum next issue! But that's for you to decide Great to see Jet Set Willy launched for the 64 after all this time We reckon he'll jet up the chart!

Some great new games enter this month Solo Flight kept us amused for hours and Quo Vadis well that's mind-blowing! Those camels just don't know whether they're coming or going the way they've moved up and down these past issues — they'll be dus for another refill soon! And why all these re-entries? Don't you folks buy new games?

This month's winner of the surprise software package is Marc Souter of Sutton-St-James Nr Spalding Lincs Well done, Marc on being first out of the hat Remember any of you could win our nifty little prize if you send in your chart coupon and keep sending in your comments these show us why you think the games should be in the top 20 They also save our editor having to think Until next month then keep 'em coming

YOUR 64 CHOICE TWENTY

your 64

My top five games for the **Commodore 64** are

1 _____

2 _____

3 _____

4 _____

5 _____

Name _____

Address _____

_____

_____

All polling slips should be mailed to **Your 64 Choice Twenty, 14 Rathbone Place London W1P 1DE** (By all means send a photocopy if you'd prefer not to harm the issue)

YOUR 64 TOP TWENTY

THIS MONTH	LAST MONTH			
1	1	**INTERNATIONAL FOOTBALL**	COMMODORE	STILL AT THE TOP OF THE DIVISION
2	4	**THE HOBBIT**	MELBOURNE HOUSE	WE'RE ALL IMPRESSED WITH BILBO'S STAMINA
3	3	**BEACH HEAD**	ACCESS	STILL BATTLING IT OUT AT NUMBER 3
4	19	**DALEY THOMPSON'S DECATHLON**	OCEAN	DALEY'S GOING FOR GOLD AGAIN!
5	7	**TALES OF THE ARABIAN KNIGHTS**	INTERCEPTOR	SPEAKS FOR ITSELF! WONDER IF LAWRENCE HAS A COPY?
6	10	**DECATHLON**	ACTIVISION	QUITE A SPORTY TOP 10 THIS MONTH — WHERE DO YOU GET ALL THE ENERGY?
7	6	**HUNCHBACK**	OCEAN	QUASIMODO SLIPS AGAIN AS ESMERALDA'S CHANCES FADE
8	5	**MANIC MINER**	SOFTWARE PROJECTS	WILLY'S DROPPED FROM THE TOP 5 BUT HE'LL STRIKE BACK
9	8	**FORBIDDEN FOREST**	AUDIOGENIC	FED UP WITH THIS ONE ALREADY? (THAT'S FORBIDDEN!)
10	NEW	**SOLO FLIGHT**	U.S. GOLD	RAPIDLY CLIMBING THE CHART
11	NEW	**JET SET WILLY**	SOFTWARE PROJECTS	AT LAST! SPECCY OWNERS HAVE HAD JET SET FOR AGES
12	11	**FOOTBALL MANAGER**	ADDICTIVE GAMES	GETTING LESS ADDICTIVE ALL THE TIME
13	14	**VALHALLA**	LEGEND	NORSE WARD BOUND! THIS COULD BECOME A SOFTWARE LEGEND
14	NEW	**QUO VADIS**	THE EDGE	ANYONE FOUND THE SCEPTRE YET? HAS YOU GRIPPING THE EDGE OF YOUR JOYSTICK
15	2	**REVENGE OF THE MUTANT CAMELS**	COMMODORE	OH DEAR! LETS HOPE THE CAMELS DON'T TAKE THE HUMP!
16	NEW	**AZTEC CHALLENGE**	U.S. GOLD	EXCELLENT SOUND AND GRAPHICS NO WONDER IT'S BACK
17	NEW	**SUPER PIPELINE**	TASK SET	THIS ONE'S A BARREL OF FUN! (GLAD YOU THINK SO! ED)
18	16	**ZAXXON**	U.S. GOLD	NOT EXACTLY FLYING HIGH — AND WHERE'S HAVOC?
19	NEW	**LORDS OF TIME**	LEVEL 9	DESTINED FOR THE TOP? ONLY TIME WILL TELL!
20	NEW	**KRYSTALS OF ZONG**	P.S.S.	ANOTHER RE-ENTRY THIS TIME PAC-MAN STYLE

SWAG

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COMMODORE 64

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THE BACK ISSUE BUG

HAVE YOU GOT IT?

READING Y64 CAN DO STRANGE THINGS TO A PERSON

THE PORTABLE 64 — Y64 GIVES IT THE IN DEPTH REVIEW TREATMENT

A HACKER'S GUIDE TO TACKLING JUMPMAN — COMPLETE WITH FULL COLOUR SCREEN SHOTS

DIY EXTENDED BASIC PACKAGE — ADDS NINE INVALUABLE KEYWORDS AND ALLOWS YOU TO DEFINE OTHERS

ISSUE 1

STOP PRESS ISSUE 2 SOLD OUT!

COMPLETE COMPARATIVE REVIEW OF ALL THE CBM 64 EXTENDED BASICS

CREATE NO LESS THAN 58 COLOURS ON YOUR 64!

THE KOALAPAD MAY BE EASY TO USE, BUT IS IT ART?

MUSIC ASSEMBLER — ENTER, EDIT AND PLAY MUSIC USING JUST A JOYSTICK AND FUNCTION KEYS!

ISSUE 3

A CARTRIDGE THAT SPEEDS UP YOUR DISK DRIVE? WE PUT IT TO THE TEST

WE TRY OUT A HIGH SPEED CASSETTE SYSTEM. IS IT AS FAST AS IT CLAIMS?

THE BIGGEST GAME OF THE SEASON — BUT DO 1812 SCREENS AND A SILVER SCEPTRE MAKE A GOOD GAME?

WE LOOK AT WHAT PASCAL, FORTH, PILOT AND COMAL CAN DO FOR YOUR PROGRAMMING

ISSUE 4

WE EXPLAIN HOW A LIGHT PEN WORKS AND REVIEW THREE

WE GIVE YOU THE LOWDOWN ON FIVE GRAPHIC ART PROGRAMS

ARE ZAXYON AND HAVOC THE HIGH FLYING GAMES THEY CLAIM TO BE?

AN INVALUABLE ALL IN ONE UTILITY FOR MACHINE CODE PROGRAMMERS

ISSUE 5

NEW VICS FOR OLD?

After much rumour and speculation, Commodore finally launched its two new home micros. But are either of them of interest to the 64 owner? Jim Lennox *examines the Plus 4,* Steve Malone *tries out the C-16*

Commodore's two new home computers must make Commodore 64 and Vic 20 owners a little nervous. "Is my micro on the way out?" they ask. The answer for the Vic 20 owner is a definite "yes": the Commodore 16 has put paid to it. The Plus 4 though is *not* a rival to the 64 — the machines are aimed at different markets and Commodore is adamant both machines will sell alongside each other.

Plus 4

The Plus/4 shares features of both the 16 and the 64 and adds a few of its own. Internally it's similar to the 16, but has 64K of memory and its own rather stylish case and keyboard. Because of its similarity to the 16, the Plus/4 can use all its software.

There are three big differences between the two machines. Perhaps the most obvious is the new case and keyboard of the Plus/4. The keyboard is very light to the touch. Secondly the Plus/4 has a full 64K of memory, a huge 60K of this is left free for use by Basic. Even when graphics are used there is 50K left free. In contrast, a laughable 2K is free on the Commodore 16 when graphics are used.

The last big difference between the Plus/4 and the C16 are the four built in programs: a word processor, spreadsheet, database and graphics program.

All the features needed in a simple word processor, including search and replace, are found in the Plus/4 word processor. Yet the designer of this program seems to have paid little thought to making it easy to use. There's almost no attempt to show the text on screen as it will look on paper. It does not word-wrap on screen, but only when printing, so words are split between the end of one line and the start of the next. When text is deleted from the middle of a document, the rest of the text moves backwards throughout the whole document to fill the space. This destroys the start of paragraphs.

The program can print to different widths and can format text in different ways, but none of thisis seen on screen. The text is always shown as being 77 columns wide. Yet the Plus/4 can only show 40 columns on its screen so this is used as a window scrolling across the 77 columns and jumping back when it reaches the edge. This makes the program hard to use. Only 99 lines of text can be handled by the program — a pitifully small amount.

Although fairly simple, the spreadsheet is better than the word processor. Its main limit is it can only show three columns of the spreadsheet at once. The spreadsheet can be up to 17 columns by 50 rows. An unusual feature is the spreadsheet and word processor can be on screen together, just a few keystrokes switches between them.

The graphics program is rather disappointing. All it can do is turn a row of numbers from the spreadsheet into a crude bar graph in the word processor.

Lastly the database program can hold up to 999 records, each made up from up to 17 fields of 38 characters. It can only be used with a disk drive. The word processor and spreadsheet programs can be used without a disk drive, but they need

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Commodore C16

Price

£134

Size

404 [illegible]

Processor

7501 0 89 MHz [illegible]

Memory

16K RAM

Resolution

Text 40 25 [illegible]

Interfaces

2 joyst [illegible] cartridge port

Language

BASIC

Keyboard

68 keys [illegible]

Manuals

Although patchy [illegible] improvement on previous Commodore manuals

THE PLUS 4 CONNECTION

The plus 4 matches the 64's interfaces The reset button is the only addition.

THE C-16 CONNECTION

It's those silly joystick ports again Spot the Spectrum style power socket.

Keyboard
The keyboard feels cheap and nasty

Cursor Keys
A sensible arrangement though the keys leave a lot to be desired

Function Keys
Each of these can be programmed with two commands of up to 128 characters

Power socket

On/off Switch

Reset Button
A welcome sight!!

Serial Bus
Peripherals such as a disk drive and printer can plug in here

7501 CPU

Cassette Socket
The computer's dedicated cassette recorder plugs in here

64K RAM
60K of this is available for Basic programming

Video and Sound Output Socket

User Port

ROMs
The ROMs contain BASIC V3.5 and the four software packages

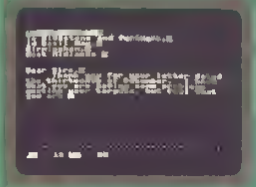
Joystick Sockets
These two sockets take the Plus 4's dedicated joysticks. Standard joysticks cannot be used

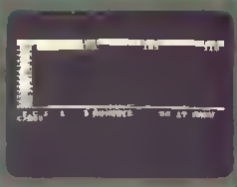
Expansion Port
This is used by cartridge software and by a "fast" disk drive

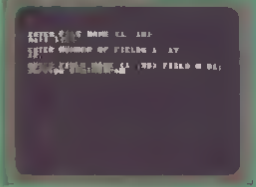
ULA Case
A large ULA (uncommitted logic array) chip is contained inside this metal case which protects against radio interference

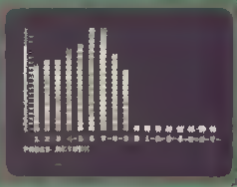
TV Modulator
This gives a signal for an ordinary television set

THE PLUS 4 SOFTWARE: They say you get what you pay for the built-in software is free...









I could write a better database in a few h

This is the Plus 4's idea of business

Commodore *PLUS/4*

Price

£300

Size

37×21

Processor

7501 at 0.9 MHz

Memory

60K RAM

Resolution

Text 40 or 80 columns

Interfaces

2 joysticks, cartridge, parallel port

Language

BASIC version 3.5

Keyboard

Type: [illegible]
Function keys: [illegible]

Manuals

The manuals [illegible] Basic [illegible] and cover the built-in software. Where the four packages are usable [illegible]

NEW VICS FOR OLD?

one to save their results so there s not a lot of point! It s absurd they cannot save their results to cassette Overall the quality of the built-in software is extremely poor

As an ordinary home micro the Plus/4 has a good version of Basic including powerful graphics commands and a few other goodies like the DO LOOP construction It also has good graphics able to show 121 different colours Yet it doesn t support sprites and the sound is closer to a Spectrum than a 64 There s also the fact that it needs its own special cassette recorder and joystick it can t even use the ones from other Commodore computers!

Overall the cost of the Plus/4 is much too high There s nothing to justify it costing more than the 64 It s a shame the built-in software is not better, as otherwise it might have made a readonably good semi-professional machine As it is it hangs rather uneasily between the home and business markets and doesn t really stand out in either

C-16

As the VIC-20 became increasingly long in the tooth, there was a great deal of speculation as to what Commodore would replace its ageing warhorse with Now we know Selling at £139 the Commodore 16 is supplied with the same sort of starter pack for the beginner that was provided for the VIC Apart from the computer and its power supply you get a manual cassette machine and six pack of games

Unlike the Plus 4 which is a Commodore in MSX clothing the C16 is housed in the familiar Commodore casing At first glance the keyboard and function keys look identical to the VIC However a closer examination shows some changes There are now four cursor keys placed in the top right hand corner of the keyboard The RESTORE key has been replaced by an escape key placed in the top left corner and the F8 key has been renamed HELP This is supposed to highlight errors in Basic programs, but often highlights whole lines that we knew were wrong when we got a syntax error!

On the right hand side of the computer is the on off switch and power socket Commodore has abandoned the old Din type socket for the power supply and opted for the female microjack that s almost become standard Another surprise is the inclusion of a reset button which will provide cold starts

Finally there are a pair of joystick ports Unlike previous machines these ports are not the 9 pin Atari standard ports that have graced previous machines but are 8 pin din type sockets These are for the new Commodore joysticks which are not yet available Still I expect someone will make a killing out of providing an interface for Atari compatability

On the back of the machine the monitor socket RF Port and serial port are of the standard Commodore configuration The cassette and expansion bus are not Instead of the old edge connectors on the Vic the cassette port is now a DIN socket (which will of course only accept the Datasette) and the expansion bus is now a cartridge port Above the expansion bus it says Memory Expansion Do not be fooled Commodore have announced that they have no plans to provide RAM packs and point out that anyone else trying to do so will have to provide a power source for the pack as the bus has not been provided with a suitable power source

This brings us to the most serious drawback with the C16 the limited memory available to the machine On power-up you are greeted with the legend 12777 bytes free Once you are in high resolution this drops to 2 Kbytes hardly better than the ZX81!

Surprisingly Commodore has provided the C16 with a small Assembler/Monitor called TEDMON which while limited at least gives the user a sporting chance of getting something useful out of the 2K available in high res

The VIC was despite everything a winner and the company have simply decided to upgrade the VIC s specifications to the early 1980 s There s little chance of 64 owners junking their old machine in favour of the newcomer partly because the C16 has an inferior hardware spec and partly because their joysticks and software are incompatible but to the raw beginner I think it will sell

TRUTH TABLES

Last month I asked you to write a program to put the 64's upper-case character set on to the screen coloured yellow. To do this, I gave you two new commands: TAY and TYA (Transfer accumulator to Y and Transfer Y to accumulator). These two commands allow us to get around the fact that the 64 does not offer an instruction to increase the accumulator. My solution is given in the Homework Solution box. This program uses the looping method that I described last month. The important part to note (and what I was testing you on in the homework) is that the Y index is only equal to zero once in the LOOP: when the loop has been round once. Remember, when the accumulator, either index or any memory location is increased past $FF it becomes zero.

Maths in Machine Code

In part three of the Tutor, I mentioned that the accumulator had special mathematical commands associated with it which could not be used with the X and Y indexes. There are basically only four things that you can do to a number in machine code — addition, subtraction, multiplication by 2 and division by 2. This month we're going to have a look at the first two of these.

The ADC or ADd with Carry command is best explained with an example.

ADC #$20 takes the number $20 and adds it to the value of the accumulator. The result is then automatically placed in the accumulator. In the same way ADC $20 takes the value of location $20 and adds it to the value of the accumulator, the result being placed into the accumulator. "So where does the Carry flag come into it?" I hear you ask. Well, the above examples of ADC are slightly simplified. What actually happens is that the value of the accumulator, the number or the contents of the address in the ADC command and the carry flag (one or zero) are all added together, the result being placed into the accumulator. If you want to add one to the accumulator, do this:

```
SEC
ADC #$00
```

The command SEC (or SEt Carry) sets the carry flag to one. Therefore the carry is added to the number $00 and both are added to the accumulator. The accumulator is therefore increased by one. If you don't want the carry flag to influence your calculations, then you must use a CLC (Clear Carry) command before doing the ADC. For example:

```
CLC
ADC $10
```

adds the contents of location $10 to the accumulator and since the carry flag has been cleared, it does not enter into the calculation. If the result of the calculation is over $FF then the carry flag will be set so that your program can deal with the situation. You will notice that it's not possible to add two memory locations (or for that matter, the X and Y indexes) without going via the accumulator.

So much for addition but what about subtraction? The command for subtracting a number from the accumulator is SBC (or SuBtract with Carry). This works in much the same way as the ADC command. For example:

SBC #$20 takes the number $20 away from the accumulator (not the accumulator away from the number!). As you can tell from the name, SuBtract with Carry, the carry flag also comes into use with the SBC command. Instead of the carry itself being taken away from the accumulator (as in ADC), the complement (opposite) of the carry is subtracted from the accumulator. In other words, when the carry is zero, its complement is one and when the carry is one, its complement is zero. Therefore to take 1 away from the accumulator use:

```
CLC
SBC #$00
```

and to have the carry ignored during a subtraction:

```
SEC
SBC #$20
```

So for example:

```
To add $05                  To subtract $05
to a memory location        from a memory location
CLC                         SEC
LDA LOCATION                LDA LOCATION
ADC #$05                    SBC #$05
STA LOCATION                STA LOCATION
```

So far we have only covered how to add numbers that are less than $FF (one byte) and how to handle properly a result that is less than $FF. Next month I'll show you how to add numbers up to the 64's limit of 65536 ($FFFF).

Truth tables

Have you ever looked at a Basic program and seen a line like this:

```
IF (A AND 127) = 25 THEN GOTO 100
```

and wondered what it means? It is in fact an example of logic (or truth) arithmetic. Logic arithmetic makes use of what are known as Truth tables. In computing we use these a little differently from mathematicians, so if you've never heard of them you're probably at an advantage! If you have a look at the Truth Tables box, you'll see truth tables for the three logical instructions available to us on the 64 — AND, OR and EOR (Exclusive-OR).

From the truth tables, you will see that once again we are looking at the binary (ones and zeros) system of numbering. If the truth tables only cover ones and zeros, how do they extend for use with numbers larger than one? The secret (and the reason that we looked at binary last month) is that you have to look at each bit (binary digit) in turn and apply the truth table rules to it. Quite a few of the 64's locations (For example the sprite and joystick locations) are better looked at from a binary point of view. How the logical commands work will become clearer as we take a look at each one individually.

The first logical command we'll look at is the AND command. From the logic table, you'll notice that unless you AND two 1s you always get a result of zero. You should also note that although some

THE COMPLETE Y64 MACHINE CODE TUTOR

Part 5 Truth Tables:

- Using machine code from within Basic (SYS and USR)
- Addition and subtraction
- More addressing modes
- Logic (truth) arithmetic

Binary to hex converter program

HOMEWORK SOLUTION

The first point to note about our Homework Solution program is that we've used the ' (equivalent of the Basic REM statement) to break up the listing into logical sections. This makes the program much easier to read.

The listing itself makes use of the TYA instruction introduced last month. We start by defining two labels and setting the Y index to zero before beginning the loop.

Within the loop, we transfer the content of the Y index to the accumulator and store this value at SCREEN plus the Y index. We then set the accumulator to $07 (the colour code for yellow) and store this result at the next position in colour RAM. Finally we add one to the Y index and check whether we've gone through the entire character set (that is, when the Y index has rolled over from 255 back to zero).

COULD THIS BE YOUR PROGRAM?

[illegible] and we would like to hear from you.

Send your program on tape together with full instructions for fast evaluation. Be sure to include computer type, memory, peripherals used and your name, address and telephone number.

[illegible] looking for **worldwide** [illegible] and **top** royalties?

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R&R SOFTWARE

R&R Software Ltd, 5 Russell Street, Gloucester GL1 1NE
Tel (0452) 502819

THE AND, OR AND EOR TRUTH TABLES

AND

Bit 1	Bit 2	Result
0	0	0
0	1	0
1	0	0
1	1	1

OR

Bit 1	Bit 2	Result
0	0	0
0	1	1
1	0	1
1	1	1

EOR

Bit 1	Bit 2	Result
0	0	0
0	1	1
1	0	1
1	1	0

These simple truth or logic tables show how the logical operators AND OR and EOR work AND will produce a result of one when both the first and the second operands (values operated on) are set to one OR results in one when either the first or the second operand is set to one EOR (Exclusive OR) only results in one when an OR is true (results in one) but an AND isn't

assemblers accept binary numbers as long as they are preceded by a % your assembler may not. If this is the case you ll have to use the binary to hex conversion program shown below Let s take an example. If a location in memory contains the number %11010101 what happens if we AND it with the number %10101010? Remembering that we must look at each bit individually using the AND truth table the problem becomes (taking each bit in turn)

```
(1AND1)+(1AND0)+(1AND0)+(1AND0)+
(1AND0)+(1AND0)+(1AND0)+(1AND0)
```

which gives the result %10000000 (128 decimal) In machine code the logical commands operate only upon the accumulator For example, if a location labelled LOCATION contains %01010101

```
LDA LOCATION
AND #%10101010
```

The accumulator now contains the result (zero) The accumulator can now be tested to find the result. So, we can AND locations and numbers — so what? Let s look at a more practical example Those of you who have used the joystick (either port) in your Basic programs will have found that, to test whether the joystick button is depressed or not, you ll have had to use a line like

```
IF PEEK (56320) = 111 THEN 1000 REM BUTTON PRESSED
```

Location 56320 ($DC00) is the location of joystick port 2 If you look at the difference in the reading when the button is pressed and when it s not you ll find a difference of 16 decimal This means that bit number 4 (16 is 2 to the power of 4) is a flag as to whether the button is being pressed In machine code to check whether the button is being pressed we simply AND the value of location 56320 ($DC00 for joystick in port 2) with %00010000 If the result is 16 (%00010000) then the button is not depressed If the result is zero then the button is depressed

```
LDA $DC00          ; JOYSTICK 2
AND #%00010000
CMP #$00
BEQ BUTTONPRESSED
```

In this way it's possible to use the AND command to test any bit in a particular location by ANDing the location with a number that is equivalent to that bit

There is, however a more important use for the AND command It s also possible to use the AND command to turn any particular bit in a location off (in other words make the bit zero) If you AND either zero or one with zero the result is always zero Using this and the fact that any bit that is ANDed with one will stay the same to turn a bit off simply AND the location with a number equal to %11111111 ($FF) minus the value of the bit that you wish to turn off

For example

```
LDA LOCATION
AND #%11011111
STA LOCATION
```

would turn bit 5 of the location off and leave the other bits undisturbed In other words if you AND a bit that is already 1 with zero then it will be turned off and a bit that is 1 and is ANDed with 1 will remain set

Let s now look at the OR command This like AND operates on the accumulator Since each assembler command must have three letters, OR becomes ORA (OR Accumulator) If you look at the truth table for the OR command you ll see that unless two zeroes are ORed the result is always one This is much the opposite of the AND command. The main use for the OR command is to set bits in a location This is achieved by ORing a location with a number equivalent to the bit that you wish to set For example to set bits four and five of a location

```
LDA LOCATION
ORA #%00110000
STA LOCATION
```

Of course all of the other bits of the location are also ORed with the number If for example bit one is already set then it will be ORed with zero and the result will be one Therefore as with the AND command it is possible to ignore bits that you don t want to change

The last of the three logical commands available to us in machine code is the EOR command Like OR and AND this operates on the accumulator As you can see from the truth table for EOR any value that s EOR with another is toggled to its opposite binary value For instance if %00000001 is EORed with %00000001 then the result is zero For example

```
LDA LOCATION
```

```
* = $C000   ;START LOCATION

SCREEN      =  $0400      ;DEFINE LABEL  SCREEN
COLSCREEN   =  $D800      ;DEFINE  COLSCREEN

            LDY #$00      ;Y INDEX = $00

LOOP        TYA           ;MAKE ACCUMULATOR = Y
            STA SCREEN,Y  ;SCREEN+Y = A
            LDA #$07      ;ACCUMULATOR = YELLOW
            STA COLSCREEN,Y ;COLSCREEN+Y = A
            INY           ;INCREASE Y
            CPY #$00      ;IS Y = $00?
            BNE LOOP      ;IF NOT EQUAL THEN LOOP

            RTS           ;RETURN TO BASIC
```

```
EOR #%00010010
STA LOCATION
```

Use the binary number after the EOR command to point to which bits you want to toggle. In the above case bits 1 and 4 in the LOCATION will be toggled from their previous value to the opposite. Binary value.

Using these three commands you now have command of every single bit in every single byte in your 64's memory. In this way you can now store eight variables in every location instead of only one. Of course each of these variables can only take the value one or zero but this can be ideal in certain circumstances. An example is in adventure games where you want to flag doors as open or closed and items as held or not.

More Addressing Modes

Last month we looked at absolute indexed addressing.

For example,

```
LDA LOCATION,Y
```

This takes the value of the Y index and adds it to the location. The accumulator is then made equal to the value of the location pointed at. In this way we can change the Y (or X) index to point at any location within the range LOCATION to LOCATION+$FF ($FF being the maximum value of the indexes). What we really need is a way of changing the value of location itself in the LDA command so that our programs can look at any location in memory.

Before we can look at this new command we must consider the two types of location that are possible with the 64. The first of these is an absolute location (or address) and this has a value in memory of anything greater than $FF. In other words any location over and including $0100 in memory is called an absolute address. Locations below $0100 are called ZERO PAGE addresses. Each $0100 (256 decimal) set of memory locations is called a page.

The new type of addressing that we will be looking at this month is called zero page indexed addressing because it uses two of these zero page addresses to point to any memory location. It looks like this:

```
LDA ($22),Y
```

For this addressing mode only the Y index can be used. So how does it work?

First of all two numbers are stored (in the lo-hi format that we looked at last time) in locations $22 and $23. These two locations can be any in zero-page but they must not be used by the 64's operating-system. Locations $22 to $23 are used by the 64 when it's communicating with an RS232 device and therefore are unused for our purposes (you're unlikely to be using a modem or printer while your machine code program is running). To calculate the value of the address that is being pointed at, take the value of location $23 (the Hi component) multiply it by 256 and add the value of location $22 (the Lo component). Since $23 is measuring in 256's changing it by one will make the LDA point at another page in memory. The location thus calculated is added to the Y index to point at another location within $FF of the original location. The accumulator is then loaded with the value of this location. Let's take a line-by line look at an example:

```
* = $C000
SCREEN = $0400
```

Tell the assembler where to place code and define label SCREEN.

```
LDY #$00
```

Zero the Y index.

```
LDA #<SCREEN
```

#< tells your assembler to take the lo component of SCREEN which is the number $00 (SCREEN is $0400) and store the result in the accumulator.

```
STA $22
```

Put the lo component of SCREEN in location $22 ready for use with the zero-paged indexed addressing.

```
LDA #>SCREEN
STA $23
```

Put the Hi component of SCREEN in 23.

```
LOOP    LDA #$20          ;$20 is 32 decimal (space)
        STA ($22),Y       ;Make ($22)+Y equal to the
                          ;accumulator
        CLC               ;Clear the carry flag ready for
                          ;addition
        LDA $22
        ADC #$01          ;Add one to $22 — the lo
                          ;component
        STA $22
        BCC LOOP          ;If the carry is clear then loop
                          ;that is, $22 has not rolled over
        RTS               ;Return to Basic
```

The above program will clear the first 256 locations of the screen. You could have achieved this by several other methods but this gives the general idea as to how zero page indexed addressing can be used. We'll be covering zero-page indexed addressing in more detail, but in the meantime you should experiment with it in your own programs because it's the most widely used type of addressing.

Homework

With only two parts of the Machine Code Tutor left to go, you should be well on the road to machine code supremacy. Next month I'll be showing you how to use the 64's inbuilt routines.

For this month's homework I want you to write a program that takes the value of location 830 (a location in the cassette buffer) and adds or subtracts 10 placing the result back into 830. Whether you add or subtract is determined by the value of location 831 (zero for addition, one for a subtraction). You can give your machine code program a good testing by using a Basic program and the SYS command to place different values into 830 and 831. Of course if the addition or subtraction goes above the number 255 or below zero then location 830 will roll up or down. How do we test for this? — I'll tell you next month.

Next month: The Kernal

- Multiplication and division by 2
- Addition and subtraction of numbers over $FF
- More addressing modes
- Kernal routines
- Subroutines

```
100 H$="0123456789ABCDEF":PRINT"INPUT A BINARY NUMBER (,)":INPUTBN$
110 IFLEN(BN$)<8THENBN$=" 0 "+BN$:GOTO110
120 FORI=8TO7:B(I/4)=B(I/4)+VAL(MID$(BN$,LEN(BN$)-I,1))*2^I:NEXT:B(I)=B(I)/16
130 PRINT"HEX = $";:FORI=1TO0STEP-1:A$=MID$(H$,B(I)+1,1):PRINTA$;:NEXT
READY
```

Your's binary to hex converter program

commodore 64

Alice IN VIDEOLAND

NOW ON CASSETTE!

PURE MAGIC!

Join Alice in her journey through Videoland - an enchanted place populated by strange creatures such as bread-and-butterflies and pipe smoking caterpillars where little girls change size and flamingos turn into croquet mallets!

Alice in Videoland is a revolutionary new concept in entertainment for the Commodore 64 incorporating some of the finest graphics ever seen on any home computer, accompanied by a charming musical score. There are four different game scenes involved and your performance in earlier ones will affect your ability to get through later ones and determine your eventual total score.

Scene One - Stunning title page graphics give way to the first game scene as Alice falls into the rabbit's warren. Score points for collecting the objects to be found there - including keys to open doors, bottles to make her smaller, cakes to make her bigger!

Scene Two - Out in the garden the Cheshire cat looks on as Alice meets the pipe-smoking caterpillar. Help her to catch the bread and-butterflies and the rocking-horse flies that change into the balls used in the croquet game in the last scene!

Scene Three - Alice is a pawn in the chess game where her opponents are the Jabberwocky and Tweedledum and Tweedledee. Help her across the board by protecting her with your White Knights!

Scene Four - The most bizarre croquet game ever! Help Alice hit the balls through the playing-card-soldier hoops before the Queen of Hearts stomps on them!

Alice in Videoland is available for the Commodore 64 on disk - £12.95 and now on cassette - £8.95

Alice in Videoland features graphics created with the Koala Pad

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●EXCLUSIVE REVIEW

COMMODORE'S MUSIC MAKER

SINGA LONGA SID

Sound is one of the 64's strongest features, how many other machines can boast a built-in synthesiser? But creating music has always been a difficult and frustrating experience — until now, that is. Dick Pountain presents an exclusive review of Commodore's Music Maker

The *SID* chip is one of the machine's strongest points by virtue of its very powerful features including three voices plus noise, four preset waveform types, digital filters and ring modulation for fancy sound effects. The power of *SID* accounts for the high quality of the music in most 64 games nowadays.

Unfortunately, like so many other things on the 64, sound is a *pig* to use from Basic. To do most of the fancy stuff you need to use machine code, or one of the extended Basics. Even then, the intricacies of programming *SID* are such that by the time you've written a line of music you'll probably have forgotten the tune!

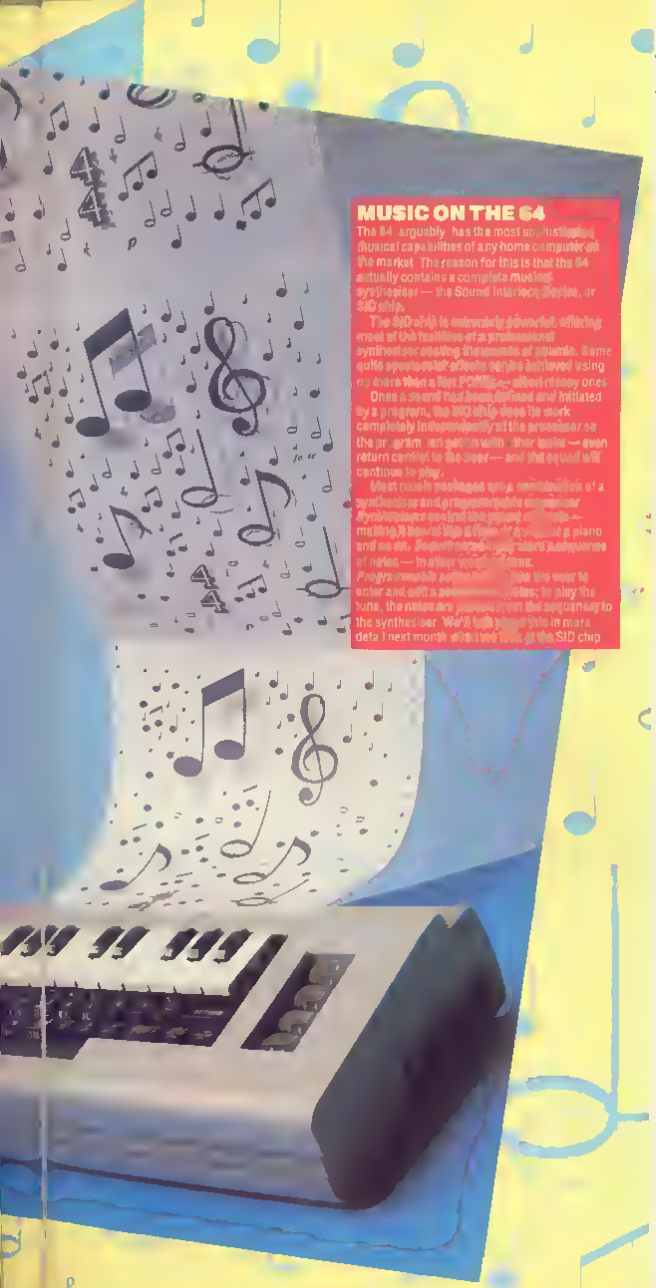
Music Maker offers an easy way out. Music Sales, one of the world's largest pop music publishers, has launched a series of music products for the 64, called *SFX* (Sound n' Effects); the products will be officially marketed by Commodore. The *Music Maker* package is the first part of *SFX*, and consists of a piano style keyboard overlay plus a program on cassette or disk. Together they allow you to play tunes directly like an electric organ, using single notes or chords, to change voices and create new voices of your own using a simple menu, and to store tunes to be automatically replayed.

Y64 DATACARD

NAME:	Music Maker
TYPE OF PROGRAM:	Synthesiser
MEDIA:	Cassette and disk
PRICE:	£29.95
SUPPLIER:	Commodore
REVIEW COPY OBTAINED FROM:	Commodore. 0536 205555

Hardware

The *Music Maker* keyboard is a very clever piece of plastic fabrication indeed. It comes in a grey frame which matches the 64 case, and simply clips over the keyboard so that its two octaves worth of keys rest on the top two rows of the 64 keys and push them down when pressed. There are no switches or genuinely moving parts at all: the black and white keys are rigidly welded to the frame and are hinged merely by bending the plastic. The keys are made of strong, flexible, high density polypropylene (as used for buckets and dustbins). Whether the hinges



MUSIC ON THE 64

The 64 arguably has the most sophisticated musical capabilities of any home computer on the market. The reason for this is that the 64 actually contains a complete musical synthesiser — the Sound Interface Device, or SID chip.

The SID chip is extremely powerful, offering most of the facilities of a professional synthesiser costing thousands of pounds. Some quite spectacular effects can be achieved using no more than a flat PCMCIA — albeit rather noisy ones.

Once a sound has been defined and initiated by a program, the SID chip does its work completely independently of the processor so the program can continue with other tasks — even return control to the user — and the sound will continue to play.

Most music packages use a combination of a synthesiser and programmable sequencer. A synthesiser controls the sound of notes — making it sound like a trumpet, a piano and so on. Sequencers [illegible] sort patterns of notes — in other words, tunes.

Programmable sequencers [illegible] you the user to enter and edit a sequence of notes; to play the tune, the notes are passed from the sequencer to the synthesiser. We'll talk more this in more detail next month when we look at the SID chip.

will eventually succumb to plastic fatigue only time will tell

The keyboard despite its extreme simplicity works very well Indeed giving a firm and positive feel Any deficiency in response compared to a real electric organ is due to lag in the software rather than any mechanical inertia in the keys

Software

I tested a disk version of the *Music Maker* software which loaded reliably, if slowly, from the 1541 drive The main control screen presents a menu of options all of which are selected by pressing the function keys F1 to F8 and the system is now ready to play At the foot of the screen is a picture of the keyboard (annotated with the note names), and as you press each note a blue cursor lights up on the corresponding key in the picture kids loved this feature

With no options selected you can play single notes only — though you can embellish them with synth-style "slides by hitting the spacebar immediately after the note This produces an upward *glissando* effect until you release the spacebar Unfortunately the depth of the keyboard overlay means that the spacebar is deeply recessed and therefore not easy to hit.

Hitting F4 changes the pitch of the keys by one octave allowing six octaves in all to be covered but with only two available at a time The octave change needs two seconds to take effect which makes it awkward while playing a tune

F2 selects one of three bass and drum rhythm tracks (one 12-bar boogie one funk and one waltz!) which you can play along to The cursor keys can be used to change the speed and F1 changes the bass between electric string and none

F5 chooses one of 6 voices and F6 allows you to change the voice parameters for any voice using a menu to step through the preset value ranges using F5 ADSR waveform type filter type and cutoff can be altered but not sync or ring modulation

F3 selects "Poly Play" mode In this mode you can play three note chords in any octave or voice

F7 puts you into the sequencer This presents a new screen menu and allows you to store notes as they are played A display at the foot of the screen shows you how many notes you've entered and the names of the last 13 notes Mistakes can be caught at this stage by deleting the last note entered though you can't edit tunes once entry is complete When a tune is complete you can then enter the timing separately by hitting any key Then you can have the whole tune played back automatically The single-key play idea pioneered by Casio, makes it possible for people with no musical ability (including young children) to make music *Music Maker* comes with a book of simple tunes which can be entered with the aid of stick-on key labels A whole series of extra books is available from Music Sales

Both voices and sequences (tunes) can

TERMINAL SOFTWARE

Terminal Software Games are available from –

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Falck – Norway
ZXAfrica – S Africa
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Alpine – New Zealand

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Stage One
Tiger Distribution

TERMINAL

Terminal Software, Derby House, Derby Street, Bury BL9 0NW, Manchester, England Tel 061-761-4321

be saved to and retrieved from disk and some (rather poor) sample tunes are included on the program disk

Limitations and Problems

The most severe limitation of the package is its inability to combine poly and sequence modes so recorded tunes are restricted to single notes only It's also irritating not to be able to fully edit a stored tune

You can't use rhythm tracks in poly mode (a limit imposed by *SID* which has only three independent voices) The display keys don't light up in this mode and sliding is not available

When playing single notes with a rhythm track it is not possible to change octave or voice without reselecting the rhythm

The top key on the keybdard (which sits over the 64 s INST/DEL key) has a prong which s slightly too short and I needed to pad the INST/DEL key with sticky tape to make it work reliably!

The software I tested was not altogether robust I crashed it several times though no pattern became evident Sometimes it crashed with Out of Memory errors sometimes with "Illegal quantity" Fortunately it has been written so that after an error any keypress causes it to restart (a 30 second set-up procedure) rather than requiring a reload from tape or disk you do however lose any tune or voices that you haven't saved

Conclusion

The *Music Maker* software is extremely easy to use It's also very limited in scope approximating a medium price electronic keyboard rather than a professional synth As such it's highly suitable for young children and general home fun use though the software ought to be a bit more robust

The great advantage of *SFX* over a dedicated electronic keyboard is that by changing the software you can change the use There are already more advanced follow up packages in the pipeline Onecalled Pro Synth (due to be launched at Frankfurt this month) will allow the full power of the *SID* to be used to give synth effects like ring modulation portamento phasing and vibrato and a series of music books of tunes by top groups like the Police and Duran Duran will allow you to play along using Pro Synth sounds Most spectacular of all is a digital sampling box (complete with mike) for £50 which lets you play tunes using recorded sounds like a very cut-price Fairlight Synthesiser A library of sound effects will be sold very cheaply too

At a mere £29 95 I consider *Music Maker* excellent value for money warts and all As a first step into the future range of *SFX* products it represents a genuine advance the world of the new electronic music at consumer prices

INTRODUCING PSYCON

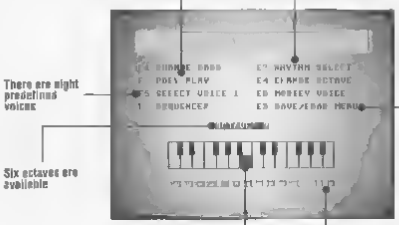
Psycon who write their own music are a dance club oriented band Violet Immaculate was going to be an opera singer and Nana wanted to become a nun before Richard Gdansk persuaded them both to form the group instead Since June when they got together they ve recorded a single with Interdisc called "Make yourself scarce" and are almost ready to record their second "Blue Rose" West Country readers will be able to catch them on TV South West s "Freeze Frame" while the rest of you will have to wait until after Christmas to see them on Channel 4 s "The Tube Psycon will be among the judges of next month s competition in which you could win a much yearned for 4 track Portastudio worth £500

Psycon: unimpressed

Rick Reckons...

"The first thing I thought when I saw the keyboard was yeugh — it looks so tacky but don t be fooled by appearances I was surprised to find that it s quite responsive and easy to use Just as well because that manual s not too hot There s an inbuilt range of pre programmed rhythm patterns I wanted to change them but no that was asking too much You can set a sequence (or even type in a tune) which is useful but I wanted to get it to play in time to the preset rhythm and guess what? Right — it won t You have to tap the space bar in time to the rhythm yourself you can t link the two automatically As for the sound well you know those cheapo toy synthesisers? I suppose for someone whose main interest is in computers and who just wants the musical bit as a hobby this would be the ideal plaything but if there are any musicians out there then be warned — this one is strictly for beginners so forget it if you want it for its musical qualities But to end on a more positive note it s definitely the best singing typewriter around"

THE MAIN MENU



All of Music Maker's functions are selected from this menu using the function keys.

FREE FLEXIDISK!

The best way to get an impression of a music package is to listen to it And here s your chance to do just that with Music Maker!

The free flexidisk on the cover will play such old singalongs as Beethoven s 5th Symphony The Entertainer Greensleeves Scarborough Fair and others to demonstrate Music Maker s range of facilities Play it just like an ordinary 45 rpm record

Next month

Next month *Y64* will be carrying out a complete comparative review of all the major music packages available on the 64 including Music Maker

YOUR 64/COMMODORE COMPETITION

You've read the review of Music Maker and want one But why part with your hard earned cash when you could let Commodore part with its hard-earned software? We've got no less than 25 packages of software plus keyboard overlays to give away in this month's free competition

All you have to do is put the list of Music Makers features below into order of importance, then tell us why you'd like to win one The first 25 entries out of the hat matching the order we've selected will win a copy of the package In addition the person supplying the wittiest answer to the tie-breaker question will win a complete Commodore 64 disk system to run Music Maker on And if you've already got one you can always sell your old system and use your sparkling new one instead!

"P(L)AY IT AGAIN, COMMODORE!"

HOW TO ENTER

As always it's dead easy to enter Just put the features A to J in order of importance For example, if you think that (a) Menu-driven commands is the most important feature, write (a) in box 1 and so on When you've filled all the boxes, complete the tie-breaker sentence using not more than 12 words The wittiest answer to this question will win both a Music Maker package and a CBM 64 plus 1541 disk drive!

But read the review in this issue first

THE CRUNCH

What's so good about Music Maker? Simply put this list of features into order of importance

(a) Menu-driven commands
(b) Produced by Music Sales — one of the world's largest pop publishers
(c) Piano-style keyboard overlay
(d) Animated keyboard display
(e) Up to six octaves available
(f) Three rhythm tracks
(g) Eight pre-defined voices
(h) Poly-play mode
(i) Single-key playback of stored tunes
(j) Free book of simple tunes

It's obvious to anyone that the correct order is

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐
6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐

I'd like to hit Commodore for a Music Maker because

Name

Address

Postcode

Use a photocopy if you don't want to cut up your magazine

Make sure your entry is complete — especially the tie-breaker — then rush it to *Y64 Music Maker Compo 14 Rathbone Place London W1P 1DE* All entries must, please, arrive by 10am on the 28th February 1985

GROUNDRULES

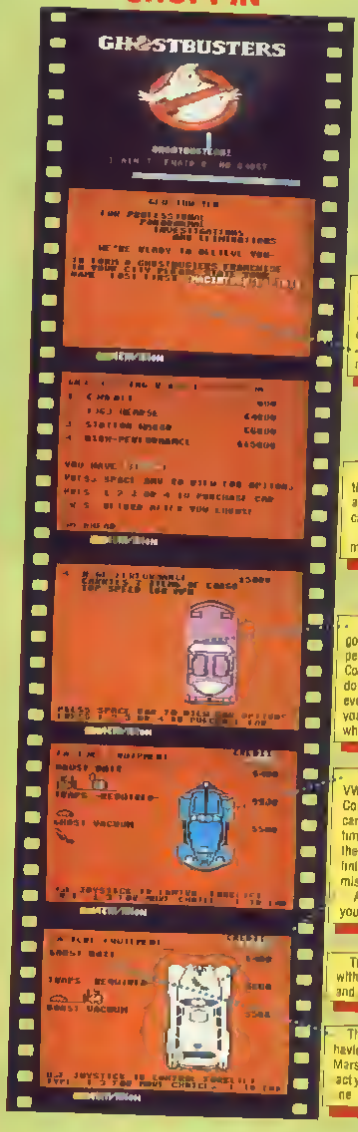
1 The decision of the judges is final No correspondence will be entered into
2 Entries which are illegible incomplete or do not fully satisfy the rules will be disqualified
3 All materials will be retained and may be published without further permission
4 All entries must be received by 28th February 1985

GHOSTBUSTERS!

The film Ghostbusters broke several box-office records in the

States and looks set to do the same here. Ian McKinnell and Sophie Wright wondered whether the game could possibly be as good as the film.

SHOPPIN'



And in the beginning — if you've already built up a franchise you'll have an eight figure code that will tell the machine your name and credit line (a clever alternative to saving a previous game).

- Should you enter a silly name you'd better make sure you remember it exactly!

Here's the price list. It's up to you to decide on the best buy — bearing in mind that you're not allowed to overstep your credit, so first-timers can forget that sports car now.

Then, in games as in life, decisions have to be made.

- This is the ultimate option to bring out the gold medallion and chest wig in you: the high-performance car, the Portable Laser Confinement System — the works. Fast, it cuts down the boredom of travel efficient you hardly ever have to go back to GHQ — but so expensive you'll never be able to repay the loan. So enjoy it while you can and to hell with tomorrow.

- The cheapskate option: the Compact car (or a VW Beetle to you and me). Slower than a Commodore disk drive and just as boring. It carries so little that you'll spend most of your time on the road back to GHQ wondering if there's some way of trading it in without finishing the entire game (there isn't). Not a mistake you'll repeat.

Allow me to recommend the hearse to those of you of more limited means.

The Station Wagon is the best buy for those with an established business, combining speed and space at a modest chunk of your loan.

- The Ghost Bait is essential, unless you enjoy having your city and score molested by Marshmallows. So too are the ghost traps, in fact you can't start until you've loaded at least one.

GHOSTBUSTIN'

This is the site of the disturbance and where most of the action takes place But first you have to get here in your chosen vehicle — see below

Get used to this sequence — you ll see a lot of it with only the occasional Roamer to liven things up Schlup them up with your ghost vacuum (you did remember to buy one didn't you?) otherwise they ll only increase your angst level as you ll be powerless against them

Perfection of your technique here is everything for failing to trap the nasty means not only that one or more of your devoted employees is about to pass into the spirit world himself (and whilst the sound effects are incredible it s possible to tire of hearing "Ha slimed me" for the nth time) Begin by dropping your trap in the middle of the screen

And manoeuvre your first Ghostbuster to the other end of the screen Make sure you leave him facing the right way

Bring in the rest of the troops Wait until the Slimer is within the range of your beam then *energise* the negative ionser backpacks (the less you use these the less you have to return to GHQ) to trap the beast and force it over the trap (Make sure that the beams don t cross!)

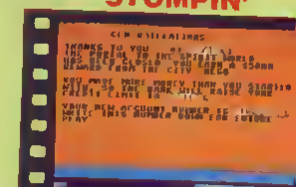
then squeeze the button *at vela!* the slimer is ensnared and your bank account is enhanced in direct proportion to the time it took

Well that was it now all you ve got to do is a repeat performance ad infinitum or until the PK level reaches danger level whichever is the sooner

CRUISIN'

Use the map to plan your strategy — the shortest route (pronounced rowt of course) to the scene of the disturbance which will freeze the most Roamers for your eager vacuum while you note the next likely disturbance etc A little kinetics applied to the space bar will give you your status And all the time your finger hovers over the # key waiting for the dreaded

STOMPIN'



Marshmallow Man! He may strike fear into the hearts of the uninitiated and do even worse things to your bank balance but for the more experienced franchise with an index finger that can travel at the speed of light he can be a boon for the Mayor will award you $2000 every time you thwart this "monolith of marshmallow monstrosity"

And you keep playing and playing until you get dragged into Zuul and the showdown — did you earn enough money? Will you be allowed any further or isn grovel in front of the bank manager time?

And this is what you ve been striving towards for the past half an hour the chance to get your employees mercilessly squashed beneath the jackbooted heel of oppression as they try and squirm into the building and finally reach the temple of Zuul And what happens then? Well you go up and up and up and

GHOST BUSTERS

Ghostbusters is one of those you've seen the film now play the game programs What makes this game different however is that (a) it really *is* based on the film, and (b) it s worth playing

The film plot centres on a couple of professors working at New York university in the department of paranormal research The two spend many a happy day chasing ghosts and female students until the university not unreasonably decides that ghost-hunting doesn t rate very highly on its list of priorities and fires them

Faced with the awful prospect of actually having to work for a living, they hit on an idea Why not set themselves up in business as freelance paranormal disturbance investigators and exterminators? In a word Ghostbusters

And so to the game Your task as a ghost-busting franchise operator (a kind of Rent-an-exorcist) is to set about rounding up New York s spooks spectres ghouls and ghosts Being an American game you not only have to save the city from death by demon-infestation you also have to make a fast buck in doing so

At the beginning of the game you re asked whether you have an account The first time you play, enter NO and your bank will automatically advance you $10 000 to finance a franchise (I think I m with the wrong bank) You ll need this money to buy the equipment used by ghostbusters everywhere a car a PK energy detector an image intensifier to make it easier to see ghosts (you get a more visible sprite) ghost bait a ghost vacuum and of course a marshmallow sensor Well you weren t seriously considering going ghost-busting without a marshmallow sensor, were you?

The well-heeled ghostbuster will buy a fast sports car and a portable laser confinement system, but you can t afford either until you've got a pretty healthy bank account You re more likely to make do with the hearse used in the film and common-or-garden ghost traps at first The game itself is straightforward

It all started the day a pretty girl opened her ice-box (fridge to you) and discovered the Kingdom of Zuul inside And all the exiled inhabitants of that supernatural world took it as an invite for a big get-together and started floating towards the Big Apple to get into the fridge As I say all quite straightforward

So now New York s paraskinetic (PK) energy level is rising relentlessly and there s nothing you can do to stop it but (luckily for New York) you can slow it up if you play your cards right This might seem selfless and virtuous but we know and you know you re not about to go to all the hassle of rescuing New York from Zuul just for the hell of it you want to do your bank balance a bit of a favour too And the beauty of it is that if you make enough money then *New York is saved as well!* Isn t life wonderful? Well enough theorising and on with the hard facts

Having chosen your vehicle and equipment according to your financial situation (sorry to keep on about it but you want to know what it s about, don t you?) you cruise around for a few blocks to the accompaniment of Ray Parker Junior s Ghostbusters tune which you might enjoy at this stage (it s a nice tune nicely played) but after a few games you ll find yourself afraid to turn on the radio for fear of hearing it

When a building is having problems of the paranormal kind it raises the alarm and flashes red on your bird s eye view of a few blocks of New York You re in business! Race round to the front door press the joystick and the scene changes to the front-of-house facade with the spook in question floating provocatively above your head Position your ghost trap

"All you have to do is stop the 100ft Marshmallow Man from getting in the fridge."

underneath and your two ghostbusters on either side and wait until said spook is directly over the trap A full blast with your doing-away-with-ghosts power-pack should make it drop neatly into the trap and add a few noughts to you credit rating which s of course the bit that interests you But things can go badly wrong — for instance if your two laser beams cross then your men end up flat on their backs but worse far worse is what happens if you use up all the energy in your power-packs without hitting the ghosts This leaves you defenceless and a sitting duck for the ghost who slimes you in revenge (not a pretty sight) Well either way after this little bust-up you get back out on those streets to look for more trouble

If only it were so simple! As you re coasting around savouring the view there are loads of sprites sorry spirits in the air all drifting towards Zuul for that get-together And since the PK level accelerates for every one that arrives there you d better make sure they don't make it And there s a lock and key floating around which must not come together at Zuul, or New York as we know it (well, some of you might) is done for Which may be no bad thing Still, onwards By running over the drifters you can keep the PK level in check and slow up the lock and key thus buying time in which to make aforementioned fast buck before it s too late

It's too late when the PK level reaches 999 and you've got less money than you started with As if all that wasn t enough after the PK level gets about half way to disaster level you get a marshmallow alert! A marshmallow alert for the uninitiated is when all the drifters suddenly transmogrify into a 100ft Stapuft Marshmallow Man personifying the Force of Evil stomping through the city wreaking havoc and destruction wherever he treads and guess who has to foot the bill for all the havoc and destruction? So you've got to kill him off pretty quick or your career is in ruins If you re fast enough you can stop him forming in the first place but I mean *fast* The moment the alert flashes press the B key with your ultra-finely-tuned reflexes and the drifters don t get a chance to get but for most mortal plebs it s only humanly possible if you get a friend to do it

Assuming you've amassed more money than you started with by the time the city s PK level reaches 999 you re admitted to level 2 in which you are standing outside the gates of Zuul itself and would enter at once if only that Stapuft Marshmallow Man wasn t bouncing around outside threatening to trample you to death User-friendly he s not You have to choose your moment to make a dash for it just as he s suspended in mid air, which sounds simple enough but you're likely to spend more time on this than on all those money-grabbing exploits put together

Well once inside you re in the heart of the kingdom of Zuul which you will remember is in the pretty girl s ice-box (fridge to you), though not so as you d notice preparing to meet thy doom and then ■

Y64 DATACARD

NAME: GHOSTBUSTERS

SUPPLIER: ACTIVISION

PRICE: CASS £10 99 DISK £14 99

TYPE OF GAME: ARCADE

MEDIA: CASSETTE AND DISK

REVIEW COPY OBTAINED FROM: ACTIVISION 01-486 7588

LOGIC 3

COMMODORE CLUB

BUMPER 20 PAGE ISSUE
CHRISTMAS COMPETITION!

BRITAIN'S No.1 SOFTWARE CLUB

WINTER ISSUE 1984/85

WIN A DISK DRIVE

Christmas Competition

1st prize ZX Microdrive & ZX Interface 1 (worth over £70)

2nd prize Currah µSpeech Synthesiser (worth £29 95)

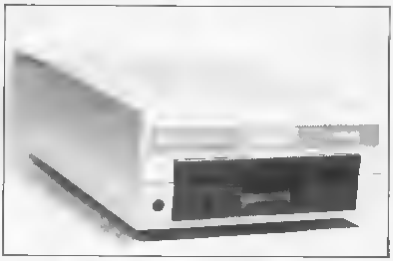
10 runner up prizes of free games software (each worth over £10)

The 1541 is undoubtedly the ultimate Commodore 64 add on allowing programs and data to be quickly saved and recalled

The 1541 also allows the 64 user to use professional application programs like Microsoft's Multiplan and Precision Software's Superbase

A 1541 Disk Drive is the First Prize in our Christmas Competition All you have to do is to carefully read the product reviews in this issue of the Commodore club catalogue then answer the questions in our quiz

First Prize will go to the first correct entry drawn on 31st January 10 prizes of FREE Commodore Software will go to the runners up



CLUB SUCCESS

The Logic 3 Commodore Club was launched in September 1984 and has been an outstanding success The rapid growth of the Club has kept Logic 3's staff working seven days a week just to keep up with demand

Tony Teller, Logic 3's managing director and coordinator of the Club, explains its success as follows "With other clubs once a person has joined there is no more reason for the club to try to support its members who each month *have* to purchase a certain number of products from a short list Our Club is different Members have no obligation to purchase *any* products from the club so the pressure is on us to choose only the best quality products and offer the best possible prices We also take a lot of pride in publishing independent reviews on all the products we carry and if we do not like something about a product we are not afraid to say so "

Tony Teller's policy of offering club members a real service rather than just running "yet another mail order business" is winning new members all the time But size by itself is not the main objective "so we grow so we will be able to improve our service to members still further and perhaps one day develop the club catalogue into a proper magazine " With the Christmas edition of the catalogue already running at a number 20 pages containing reviews of more than 150 products that day may come quite soon!

INSIDE

★ **APPLICATIONS**
A selection of the most effective application programs available

★ **GAMES**
The best games for the Commodore selected by our own review panel and rated according to graphics sound colour originality and interest.

★ **PROGRAMMING**
The Learn BASIC tutorials really show you how to write structured programs in easy to understand stages

★ **UTILITIES**
Compose your own music

★ **HARDWARE**
Some good deals in hardware and peripherals

LOGIC 3's SOFTWARE PANEL

Neil Atkinson pupil of Sir William Borlase School spends his weekends in a shop selling home computer software intends to work as a journalist

Andrew Goltz, director of Logic 3 spent 8 years with Commodore s UK and International Divisions instigated Commodore s Approved Product scheme for third party software

Bles Healey graduate of London School of Economics has translated business software into French currently working on the design of graphics for educational software

Tony Teller director of Logic 3 former journalist specialist in business applications on Micros and co-ordinator of Logic 3 s software club

ARCADE

We open the Logic 3 winter catalogue with our select on of Arcade games. Of the thousands of such programs now available for the Commodore these 90 must seem like the tip of the iceberg yet even with unlimited space we wouldn t add many more. Certainly there are some brilliantly packaged and h ghly advertised games around—but you won t necessarily see them here—we ve looked at most and chosen only the best. Some of our selections are "classics" innovative in their time and still topping the ratings today. Others we ve chosen because they've added a new dimension to the arcade game or s mply because they raise the level of excitement or challenge to a new plateau. Whichever game you choose from this list you will not be disappointed.

Ancipital

Machine 4 commodore 64
Joystick Essential
Category Arcade
Publisher Llamasoft

Price £7 50 **Club price £6.40**

The Ancipital half man half goat s trapped inside a 100 room grid. The rooms are la d out in a 10x10 square and you must defeat wave after wave of different al ens to escape from the grid. All the rooms in the grid are interconnected and fast reflexes are required to move from room to room. Due to the weird gravity in the grid you can walk on any side of the room and even walk up and down on the ceiling! The figure of the Ancipital is about 1 5 cms high and resembles a very hairy man with horns. As you work your way through the grid (a map is provided). look out for the six Camel Keys and the five Goats of Power.
A fast and addictive game which maintains Llamasoft's reputation for fast arcade action with good graphics and sound.

Ratings 10
Graphics 8 Originality 7
Sound 7 Interest 7
Colour 7 Order code ANCIP

Aztec Challenge

Loading Turbo load
Joystick Essential
Category Arcade
Publisher Cosmi

Price £8 95 (tape) £12 95 (disk)
Club price £7 46 (tape) **11.95** (disk)

An outstanding original game from Cosmi featuring great graphics and synthesized sound. The graphics are as smooth as a film cartoon and the sound complements the action.
Every year the Aztec priests sacrifice luckless victims to their gods. This year you are one. You must compete in an endurance and obstacle course of skill and daring to prove your worth.
Terrific sets a new standard for arcade games on the 64.

Ratings 10 Originality 10
Graphics 10 Interest 10
Sound 10 Tape order code AZTCH
Colour 10 Disk order code AZTCH D

Bozo's Night Out

Loading Ultra fast load
Joystick Essential
Category Arcade Adventure
Publisher Taskset

Price £6 90 (tape) 9 95 (tape)
Club price £5 40 (tape) **8.45** (disk)

Bozo having drunk too many pints of beer has to get back home from his friendly local alas the normally straightforward journey has suddenly become treacherous. Great cartoon style animation smooth scrolling background and good arrangements of well known drinking tunes.

Ratings 10
Graphics 9 Originality 10
Sound 10 Interest 9
Colour 10 Tape order code BOZO
Disk order code BOZO D

Bruce Lee

Machine Commodore 64
Joystick Essential
Category Arcade
Publisher US Gold Datasoft

Price £9 95 (tape) £14 95 (disk)
Club price £7 46 (tape) **£12 95** (disk)

An amazing game with smooth cartoon style animation. You guide Bruce Lee around the 21 secret chambers of the Evil Wizard s castle. Here you confront many obstacles in your search for his riches. The wizard has a formidable set of bodyguards including Ninja brandishing broken sticks and the even more deadly Great Yammo. You can only defend yourself against these foes by using your skill at the martial arts. You can run kick chop leap jump climb and jump to defeat your opponent.
A very enjoyable game with outstanding joystick control and super smooth cartoon animation. Recommended.

Ratings 10 Originality 10
Graphics 9 Interest 9
Sound 9 Tape order code BRULE
Colour 9 Disk order code BRULE D

Chartbuster

Machine Commodore 64
Joystick Optional
Category Arcade
Publisher Alligata

BONUS £6.95 PRICE

Price £9 95 **Club price £8.45**

We have previously reviewed "Blagger" from Alligata and although this title s now dropped from their range the publishers have included it in the "Chartbuster" tape—a compilation of five different games all in one cassette.
The other titles on this tape are "Killer Watt" "Eagle Empire" "Panic Planet" and "Bug Blaster". Although these are less well known we feel that this tape represents excellent value for money especially at the Bonus Price as you re effectively getting each title for £1 391 there s nothing cheaper in our catalogue.

Order code CHART

IMPORTANT
The prices in this catalogue take effect from 1st December 1984. All previous catalogues and price lists are now superceded. Logic 3 reserve the right to alter prices without notice.

Chinese Juggler

Joystick Essential
Category Arcade
Publisher Ocean

BONUS £3.45 PRICE

Price £6 95 **Club price £5 46**

An extraordinary game—the result of a national competition run on Hungarian TV—Chinese Juggler has superb strip-cartoon style graphics and is unlike any game you have played before. As the Juggler you must keep 8 plates spinning on poles simultaneously. This requires skill judgement and good timing. Approach the table pick up a plate then go to the rod and spin the plate. When you have all eight plates up and spinning you move on to another screen where the spinning is harder.
A great game for all the family.

Ratings 10
Graphics 10 Originality 10
Sound 9 Interest 10
Colour 9 Order code CHIJU

Chuckie Egg

Loading Fast load
Joystick Optional
Category Arcade
Publisher A + F Software

Price £7 90 **Club price £6.50**

Guide Hen House Harry around the Hen House pick up a dozen eggs and collect as much corn as you can without being pecked to death by the Ducklings. Watch out for Mother Duck when she s let loose on level 9.
A BBC favourite now available for the Commodore 64.

Ratings 10
Graphics 7 Originality 8
Sound 7 Interest 8
Colour 6 Order code CHU64

Cliff Hanger

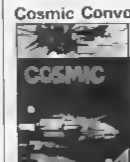
Machine Commodore 64
Joystick Optional
Category Arcade
Publisher New Generation Software

Price £7 95 **Club price £6.76**

You are Cliff Hanger the star of the show! Your job s to stop the dastardly El Bandito from shooting up the canyon!
The game is a cross between Lone Ranger and Roadrunner. In a series of over 40 cartoon episodes you have to use your wits and ingenuity to stop the desperado roll boulders off the cliff drop anvils lob bombs chuck a boomerang and much much more! Cliff Hanger is an amusing game that should appeal to younger players and has a two-player option.

Ratings 10
Graphics 6 Originality 7
Sound 5 Interest 6
Colour 7 Order code CLIHA

Cosmic Convoy



Joystick Essential
Category Arcade
Publisher Taskset

BONUS £3.45 PRICE

Price £6 95 **Club price £5.26**

Planets in the system Comar are dying and millions of people need supplies urgently. A relief convoy is in orbit around Corn Alpha and you must ensure that the convoy reaches the planet with the supplies. Under your command is a squadron of H Vipe each of which

has a stab laser to destroy the enemy An arcade classic with a good beam ng sequence to set the mood for the rest of the game

Ratings 18

Graphics 4 Originality 8
Sound 5 Interest 6
Colour 7 Order code COSCO

BONUS PRICE

If you are applying to join our Club you may take up to five titles at the Bonus Price , and as many as you wish at the Club Price This offer applies during your first 60 days membership Thereafter you may take one item at the Bonus Price provided you order three further products at the Club Price

Encounter

Joystick
Essential
Category
A cade
Publisher
Novagen

Price £9 95 (tape) 12 95 (disk)
Club price £8 46 (tape) £11 45 (disk)

A fast action game in 3 Dimensions Leaving your mother ship you set off in a small probe to explore the planet below Suddenly you are under attack! The encounter has begun!
The saucer that is attacking is shown on your instruments as your tracking computer plots its position
Encounter is a game that will have arcade-game lovers riveted to their screens Super smooth fast scrolling graphics and high quality sound as you dodge missiles and try to blast alien saucers give a great feeling of involvement High-speed combat at its most exciting! Highly recommended

Ratings 10

Graphics 10 Originality 8
Sound 8 Interest 10
Colour 5 Tape order code ENCOU
Disk order code ENCOU D

Falcon Patrol

Joystick
Essential
Category
A cade
Publisher
Virgin

Price £6 95 Club price £5.56

A sole survivor of the Falcon Patrol you must try and stop the attacking jets from destroying your oil installat on and refuel ng bases Your VTOL jet is armed with 100 anti aircraft missiles and a very sophisticated radar system show ng your refuelling and re arming bases together w th any enemy aircraft in the vicinity
An aerial dogfight which has to be seen to be believed!

Ratings 10

Graphics 8 Originality 9
Sound 7 Interest 9
Colour 8 Order code FALFA

Falcon Patrol 2

Machine
Commodore 64
Joystick
Essential
Category
A cade
Publisher
Virgin Games

Price £7 95 Club price £6 75

If you thought Falcon Patrol was good you will be impressed by the sound and graphics effects of Falcon Patrol 2
After the inconclusive result of the last battle the enemy is out to crush the small battered town once and for all
As pilot of a vert cal take off Falcon jet you are the town s only hope of survival The enemy have rearmed themselves with a solo gunship and transport hel copters air to-air and ground to air missiles flak batteries and radar jammers
A superb game with 16 levels of increasing diff culty Incredible 3D graphics, and very realistic sound effects recommended

Ratings 10

Graphics 8 Originality 8
Sound 9 Interest 8
Colour 8 Order code FALP2

Fire Quest

Machine
Commodore 64
Joystick
Optional
Category
A cade
Publisher
The Edge

Price £9 95 Club price £8 46

A seven part game in wh ch you gu de Ugh on his quest for fire The first challenge involves vicious giant spiders who are intent on stopp ng Ugh reaching a swing ng rope at the top of the screen By swinging ropes Ugh makes it across the deep ravine and up to the volcano Then Ugh builds a fire avoiding the fireballs as he collects the wood Next Ugh tries to collect the flame from the volcano w thout being killed by the earthquakes! Four more screens of action and danger quality graphics and sound make this prehistoric Hunchback a good buy

Ratings 10

Graphics 8 Originality 8
Sound 8 Interest 7
Colour 7 Order code FIREQ

Flek

Machine
Commodore 64
Joystick
Optional
Category
A cade
Publisher
US Gold Funsoft

Price £9 95 (tape) £14 95 (disk)
Club price £7 95 (tape) £12 95 (disk)

You view your AGX hypersonic fighter from above and pilot it on a mission to the computer control centre The centre is after total control of the Earth Guarding the Centre are flak batteries which can fire from any direction You are armed with air to ground missiles and with these you must first destroy the flak batteries and then the Control Centre
Good smooth screen scrolling

Ratings 10

Graphics 9 Originality 8
Sound 9 Interest 8
Colour 8 Tape order code FLAK
Disk order code FLAK D

Flip & Flop

Machine
Commodore 64
Joystick
Essential
Category
A cade
Publisher
Statesoft
First Star

Price £8 95 Club price £7 40

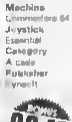
Help Flip the kangaroo and Mitch the monkey escape from a futuristic zoo and get back to their friends in the circus This is a technically polished game requiring co-ordinat on and fast responses Make Flip hop from platform to platform on a float ng multi level 3D grid and then as the whole screen turns upside down and the perspective flips into reverse swing Mitch around the bottom of the platforms as both animals try to escape the Zookeeper and his flying net
This is a vast game 36(!) different levels and animated intermissions for one or two players

Ratings 10

Graphics 8 Originality 8
Sound 7 Interest 7
Colour 8 Order code FLFL

Fort Apocalypse

Machine
Commodore 64
Joystick
Essential
Category
A cade
Publisher
Synsoft



Price £9 95 Club price £7 96

A fast action arcade game that demands great joystick skill You pilot a helicopter and your mission is to rescue your 18 friends trapped in the deadly caverns First you must combat the enemy tanks armed with tracker missiles and robo choppers controlled by computers To gain access to the caverns you must blast your way through the surface access doors Beware the hyper and laser chambers! A superb game with well defined graphics realistic sound plus randomly placed dangers so that the game is always new Very addictive

Ratings 10

Graphics 8 Originality 9
Sound 8 Interest 8
Colour 8 Order code FORAP

Ghostbusters

Machine
Commodore 64
Joystick
Optional
Category
Publisher
Activision

Price £10 90 Club price £8 25

The smash hit film and theme tune combined to make an outstanding game A city is being spooked by some freaky phantoms
To deal with them you set up a Ghostbuster franchise After having been lent £10 000 by the bank you are given a choice of four Ghostbusting vehicles You can have a Compact at £2 000 a hearse at £4 000 a station wagon at £6 000 or a high performance car at £15 000 Each car has different performance characteristics The next three screens are concerned with your choice of equipment This includes a PK energy detector image intensifier and marshmallow sensor a ghost vacuum for sucking up roaming ghosts ghost traps for actually trapping ghosts You are now equipped for ghost busting On the map screen you see a chart of the city showing all the buildings ghosts etc around Buildings that are flashing red are being haunted
Take your car to one of these press fire and you then see the street journey from your last position to your present location You drive your car along the road sucking up ghosts with the ghost vacuum
Once at the building you get out of your vehicle and place a trap in the centre of the screen Then you call out a fellow Ghostbuster and standing on opposing sides of the screen turn on your backpacks From them comes an energy stream that you use to chase the ghost into the trap If you succeed carry the trap back to the car and you're off to another tricky Ghostbusting scene
Amazing sound (including speech) and excellent graphics Very original

Ratings 10

Graphics 8 Originality 9
Sound 10 Interest 9
Colour 7 Order code GHOST

Glug Glug

Machine Commodore 64
Joystick Optional
Category Arcade
Publisher CRL

Price £7.95 **Club price** £6.75

A perilous underwater animation you are a fearless deep sea diver on a mission to collect treasure from the sea bed
The sea creatures are none too pleased about this invasion of their privacy The hostile Piranhas jellyfish giant squids killer crabs fighting fish and hunter sharks are after you!
Your only defence against these enemies is your dart gun As you dive from the surface to the bottom of the sea you must be careful that the sharks do not eat through your air pipe that is connected to the boat If you should come into contact with any of the sealife well it s goodbye and Glug Glug!
An enjoyable game with six different skill levels from the deadly slow yawn level to the super fast suicide level

Range 10
Graphics 7 Originality 8
Sound 8 Interest 8
Colour 7 Order code GLUGL

GAIN AN EXTRA 10% Discount

By ordering at least ten items of software at the Club Price you qualify for an additional 10% discount Please note that this offer doesn t apply to hardware or to items taken at the Bonus Price

Gridrunner

Joystick Essential
Category Arcadey
Publisher Llamasoft

BONUS £2.95 PRICE

Price £4.95 **Club price** £3.75

The earth s Power Grid is being tapped by a force of alien Droids who are using the energy to replicate themselves You command The Gridrunner a fast and highly manouevrable combat ship equipped with a laser cannon If you use all your skill and experience you will be able to clear the grid of Droids But watch out the next attack wave comprises Droids that are more powerful and intelligent than those that came before

Range 10
Graphics 7 Originality 5
Sound 6 Interest 7
Colour Order code GRR64

Gyropod

Joystick Essential
Category Arcade
Publisher Tasksel

Price £6.90 (tape) £9.95 (disk)
Club price £5.95 (tape) £8.45 (disk)

Outstanding graphics accompanied by good music and sound effects As commander of the Galaxy Ranger you must seek out and then destroy every planet in the alien system Plunder the planets before you destroy them to replace your ammunition
A game demanding skill and fast reflexes

Ratings 10
Graphics 9 Originality 7
Sound 8 Interest 7
Colour 8 Tape order code GYROP
Disk order code GYROP D

Harrier Attack

Machine Commodore 64
Joystick No
Category Arcade
Publisher Durell Software

BONUS £3.95 PRICE

Price £6.95 **Club price** £5.95

As you take off from your aircraft carrier you realise that you are on your own Your task is to destroy the enemy s defences You are armed with bombs and rockets As you fly over the enemy island your plane is damaged by anti aircraft fire—but if you eject you may just survive for another mission!

Range 10
Graphics 7 Originality 7
Sound 6 Interest 7
Colour 7 Order code HARAT

Havoc

Machine Commodore 64
Category A cade
Joystick Essential
Publisher Dynasoft

Price £9.99 **Club price** £8.45

You are a pilot in the world peace force on a mission to rescue the world from total destruction
You must launch your aircraft and intercept incoming missiles penetrate hostile enemy territory and destroy the missile launch site The enemy territory s in the form of a spectacular 3D tunnel that is well armed and very tricky to negotiate The missiles are guided along this tunnel by the enemy and each one that you allow past you destroys ten percent of your homeland Smart bombs and magnetic bombs blow you off course You must also negotiate the obstacles blocking the tunnel such as walls with only very small apertures in them
Smooth scrolling arcade fun

Ratings 10
Graphics 8 Originality 4
Sound 8 Interest 7
Colour 7 Order code HAVOC

Hexpert

Joystick Optional
Category A cade
Publisher Anirog

Price £7.95 **Club price** £6.95

Bert is a small charming and furry creature who used to live on a far away planet He has been captured by the evil witch Zoganaar who forces him to play on her games pyramid Bert has to change the top faces of each pyramid slab by jumping from one block to another whilst Zoganaar throws rubber balls at him and unleashes her pet snake to devour him His only chance of survival is to jump on the spinning discs thus luring the snake to its death When all the surfaces are painted he has to start all over again But each time the wicked witch gets angrier trying even harder to stop him
A good family game

Range 10
Graphics 7 Originality 7
Sound 6 Interest 7
Colour 7 Order code HEXPE

High Noon

Machine Commodore 64
Joystick Essential
Category Arcade
Publisher Ocean

Price £6.90 **Club price** £5.95

A shootout in the Wild West where the rules of survival are shoot first ask questions later In the small town you as sheriff must protect the citizens from the bandits Unless you stop them the bandits will rob the bank or raid Saucy Sue s bar taking the girls as hostages In later screens there are more bandits sometimes on horseback sometimes armed with dynamite Riga Mortis the undertaker attends to corpses taking them off to the undertakers Eventually you may trace the bandits to their cave where you face the final showdown
A really amusing game with superb graphics and sound

Range 10
Graphics 8 Originality 8
Sound 8 Interest 7
Colour 8 Order code H N

Horace Goes Skiing

Loading Ultra fast load
Joystick Optional
Category A cade
Publisher Melbourne House

Price £5.95 **Club price** £4.95

Horace wants to go skiing but before he can he must rent his skis Not too hard? Well the hut is on the other side of a busy road full of lorries cars and kamikaze motor cyclists Horace has £40 to spend Ambulance fees are $10 if he gets knocked over and ski hire is also $10 Once he gets the skis he must cross the road again!
Now he can go skiing At the ski slope you need considerable skill to guide Horace down the run avoiding trees and staying between the flags whenever possible If you hit a tree and break the skis Horace must cross the highway again to rent another pair
Two games in one both very smooth cartoon animation
Excellent family fun

Ratings 10
Graphics 8 Originality 8
Sound 8 Interest 8
Colour 7 Order code HGS

Hover Bovver

Joystick Essential
Category Arcade
Publisher Llamasoft

BONUS £2.95 PRICE

Price £7.50 **Club price** £6.95

Jim s cylinder mower has broken down Deciding to borrow his neighbour s Air mo he takes it without telling them When he s happily mowing his lawn the neighbour sees him and tries to retrieve it Jim must try to complete the job whilst trying not to annoy his dog Rover and avoiding his neighbour
A totally original arcade type game from Jeff Minter the man with a cult following amongst arcade fans

Ratings 10
Graphics 7 Originality 10
Sound 9 Interest 9
Colour 9 Order code HOVBO

Hunchback

Joystick Optional
Category A cade
Publisher Ocean

Price £6.95 **Club price** £5.25

Quasimodo must rescue the

★ New Members—you can take up to five titles at the 'Bonus Price'

imprisoned Esmeralda from the castle stronghold. Jump along the ramparts, swing over the fiery pits, dodge the arrows and fireballs and remember to keep ahead of the chasing knight.
15 screens of fun and excitement each one more difficult than the last

Ratings 10

Graphics 8 | Originality 5
Sound 8 | Interest 8
Colour 7 | Order code HUN64

Jammin'

Joystick Optional
Category Arcade
Publisher Tasksel

BONUS £3.45 PRICE

Price £6.95 Club price £5.46

You must guide Rockin' Rodney through the top 20 and build up his band. Trying to stop you are the Bum Notes—Dischord and Rodney's arch enemy, Distortion. Yet again a superbly original concept from Tasksel beautifully implemented on the Commodore 64 and making full use of its sophisticated sound facilities. It features an interactive rock sound track with second harmonies as Rodney gets 'The Band' together

Ratings 10

Graphics 8 | Originality 10
Sound 10 | Interest 9
Colour 8 | Order code JAMIN

Jinn Genie

Machine Commodore 64
Joystick Optional
Category Arcade
Publisher Microsphere

Price £8.95 Club price £7.96

An exciting arcade game set in the heart of Arabia. The Golden City has been taken over by the evil Ifrisat. He has placed magical guards to protect the city approaches, to defend the palace courtyard and to keep the passageways in darkness. Ifrisat lies in the Inner Sanctum where he keeps the wise men behind bars.
As the only hero available you are chosen to go to the palace, defeat Ifrisat and rescue the wise men. Armed only with an old flying carpet and a little magic you set off. To approach the city you fly on your carpet, avoiding and where possible destroying the magical guards. Once at the city you must locate the temple, scale the courtyard walls, find an open window, then enter the passageways to light all the torches and find the magic jar. If you make it to the Inner Sanctum you must free the old man and try to capture Ifrisat in the jar. If you succeed you are off to a different city to battle with a more skilful Ifrisat.
Good graphics and sound with very smooth scrolling

Ratings 10

Graphics 8 | Originality 9
Sound 8 | Interest 8
Colour 8 | Order code JINGE

Jumpin' Jack

Joystick Optional
Category Arcade
Publisher Livewire

Price £7.95 Club price £5.96

Jumpin' Jack (frog) has just had a night out with the Newts! In an endeavour to get home to his pond leaf he must cross a road whilst avoiding the traffic. As if this is not enough he must then cross a river by jumping on logs and turtles. If he fails to get home in the allotted time then he must start again from scratch

Ratings 10

Graphics 9 | Originality 8
Sound 9 | Interest 8
Colour 10 | Order code JUMJA

Kong

Joystick Optional
Category Arcade
Publisher Anirog

Price £7.95 Club price £5.96

That very special lady in your life Fay Ray has been abducted by the evil Kong. You have to cross 4 screenplays to rescue her from Kong's clutches
This 32K masterpiece emulates Donkey Kong from the arcades. It is certainly the biggest and best version available for the Commodore 64

Ratings 10

Graphics 7 | Originality 8
Sound 4 | Interest 8
Colour 7 | Order code KONG

Lazer Zone

Joystick Essential
Category Arcade
Publisher Llamasoft

BONUS £3.45 PRICE

Price £7.50 Club price £6.75

The evil Empire of Ifrata is attacking Terran outposts. Your task is to defend the Federation with the assistance of two laser cannon batteries. Lazer Zone features the simultaneous control of two Plasma Cannon, smart bombs and a Countdown Wave Indicator. Another totally original game from Jeff Minter at Llamasoft

Ratings 10

Graphics 7 | Originality 8
Sound 7 | Interest 7
Colour 8 | Order code LAZ64

Lazy Jones

Machine Commodore 64
Joystick Optional
Category Arcade
Publisher Terminal Software

Price £7.95 Club price £6.76

A high quality, real value for money cassette (there are 18 arcade games to play). Lazy Jones is the laziest person that you will ever meet! His only aims in life are to avoid work at all costs and to master the arcade games that are in each room of the hotel where he works
The 18 rooms of the hotel are on three levels connected by a lift. In the main screen you see the door to each of the rooms, the lift in the centre of the screen, and on each floor someone or something waiting to catch Lazy Jones. You must guide Lazy Jones into each room, where he will find a large TV screen and a joystick. Then you take over from Jones and start playing the arcade game. There is a time limit to each game, and when it is finished Jones leaves the room and ventures out into the corridor
The graphics are very impressive and the sound is amazing, an excellent value package that will keep you playing for along time. Recommended

Ratings 10

Graphics 9 | Originality 9
Sound 10 | Interest 9
Colour 9 | Order code LAZJO

Loco

Loading Quick and Joystick Optional
Category Arcade
Publisher Alligata

BONUS £5.95 PRICE

Price £7.95 Club price £6.96

Your chance to be an engine driver, but this is no ordinary railroad—you must manoeuvre your steam engine along the tracks, avoiding runaway wagons and fighting off an air attack!
Great fun for all the family, this game features great split screen graphics and a toe tapping sound track

Ratings 10

Graphics 8 | Originality 10
Sound 10 | Interest 10
Colour 10 | Order code LOCO

Matrix

Joystick Essential
Category Arcade
Publisher Llamasoft

BONUS £3.45 PRICE

Price £7.50 Club price £5.95

It is ten years since the infamous Grid Wars and you are one of the few survivors of those early grid squadrons. But the aliens are back and they have superior weapons and tactics! However, you too have the latest fighter with improved firepower and manoeuvrability. The enemy's recruits include drones, cosmic camelids, deflexors, diagonal waves, zappers and the snitch. You need all your skill and experience to clear earth's atmosphere, enter grid one (of twenty) and prepare for battle

Ratings 10

Graphics 8 | Originality 9
Sound 8 | Interest 8
Colour 9 | Order code MAT64

Mr. Robot and his Robot Factory

Machine Commodore 64
Joystick Essential
Category Arcade
Publisher Beyond

Price £8.95 Club price £7.96

A classic platform game from Datamost now published in this country by Beyond
Guide Mr. Robot through 22 different screens full of different traps and obstacles. Avoid the alien fire and collect all the power pills. There are twenty two different skill levels to choose from and also a brilliant idea—the facility to construct your own factory. Create your own ladders, lifts, escalators, poles, trampolines and treadmills
A good action platform game with the possibility of an infinite number of different screens!

Ratings 10

Graphics 7 | Originality 9
Sound 7 | Interest 8
Colour 7 | Order code MRROB

Pitfall II

Machine Commodore 64
Joystick Essential
Category Arcade
Publisher Activision

Price £9.95 Club price £8.46

An excellent multi screen arcade game in which you guide Pitfall

Harry around the Lost Caverns of Machu Picchu in Peru Through these caverns flows the unchartered tributary of the Urubamba River with many waterfalls and deadly electric eels It is in these caverns that you have foolishly undertaken to find the legendary, cursed Raj Diamond and the gold bars recently stolen from Fort Knox How will you fare against the poisonous frogs scorpions and the dreaded Andean condor and the many other nasties?
A great arcade game that will keep its appeal for a long time
Recommended

Ratings 10
Graphics 9 Originality 6
Sound 6 Interest 6
Colour 7 Order code PIT2

Poster Pastor

Machine Commodore 64
Joystick Essential
Category A cade
Publisher Tasksel

Price £6 90 (tape) £9 95 (disk)
Club price £5 95 (tape) £8.95 (disk)

Another original arcade game from Tasksel Your job is to paste a poster on a billboard the task is hindered by little creatures that run along the street taking your poster away from you You can obliterate these creatures with a splatter of glue from you brush
The poster is in six pieces and each one must be stuck on the board in the right order You have a ladder to climb up but you must position it correctly so that you don t drop the poster

Ratings 7/10 Originality 8
Graphics 8 Interest 7
Sound 8 Tape order code POSPA
Colour 8 Disk order Code POSPA D

Potty Pigeon

Joystick Essential
Category Arcade
Publisher Gremlin Graphics

Price £5 95 Club price £4 45

Guide Percy the potty pigeon on a suicide mission in a desperate attempt to build a nest Dive down onto the road collect the ten neat building twigs from the path of the encoming cars and take them back to the nest Splat the cars with eggs avoid the kamikaze planes balloons the pigeon eating cat and the starving ferret To move onto other levels you must complete the nest
Smooth super fast scrolling action stunning graphics and creative music and sound effects Highly recommended

Ratings 10
Graphics 8 Originality 9
Sound 10 Interest 9
Colour 9 Order code POTPI

Quintic Warrior

Joystick Essential
Category A cade
Publisher Quicksilva

BONUS £4.95 PRICE

Price £7 95 Club price £6 95

The Quintic Warrior s part man part superman who has to fight alone against the cyborgs and mutants who inhabit the Dome City sometime in the future
To quote Quicksilva Quintic Warrior is an arcade mega game fully using the Commodore 64 s facilities Need we say more!

Ratings 10
Graphics 7 Originality 8
Sound 7 Interest 7
Colour 7 Order code QUIWA

Revenge of the Mutant Camels

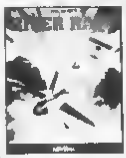
Joystick Essential
Category A cade
Publisher Llamasoft

Price £7 50 Club price £6 95

Jeff Minter s sequel to Attack of the Mutant Camels! — Revenge of the Mutant Camels puts you in control of a 30-foot high neutronium shielded laser spitting death camel which leads the vanguard of a rebellion against the evil Zyaxian Overlords
This incredible game has desuitful smooth scrolling graphics and 42!!! completely different attack waves it kept our reviewer glued to his Commodore 64 for days One of Jeff Minter s best Can you free the camels and reach that elusive 42nd level?

Ratings 10
Graphics 8 Originality 10
Sound 6 Interest 9
Colour 10 Order code REVCA

River Raid



Machine Commodore 64
Joystick Essential
Category A cade
Publisher Activision

Price £9 95 Club price £8 95

An exciting game in which you take the part of a pilot flying over the River of no Return which is infested by enemy helicopters and boats On the bridges across the river are the tanks trying to knock you out of the sky For maximum affect blow up the bridge as they cross it Your plane is equipped with missiles and you will come across fuel dumps floating in the river
Good sound very playable

Ratings 10
Graphics 6 Originality 6
Sound 5 Interest 6
Colour 6 Order code RVRA

Rocket Roger

Machine Commodore 64
Joystick No
Category A cade
Publisher A gold

BONUS £4.95 PRICE

Price £7 95 Club price £6 75

Rocket Roger's space ship has run out of fuel so he ventures outside to explore the dark mysterious planet Deep in the middle of the vast unknown playing area lie 99 power crystals that will recharge his rocket and enable him to get home However the planet is inhabited with many nasties and guarded by security laser beams force-fields and sliding doors Roger has a rocket powered backpack which can boost him in any direction at varying speeds Guide him above around and between the treacherous terrain of the planet to collect all the crystals A good game with a large playing area that scrolls very smoothly

Ratings 10
Graphics 7 Originality 6
Sound 7 Interest 5
Colour 7 Order code ROCRO

Sheep in Space

Joystick Essential
Category Arcade
Publisher Llamasoft

Price £7 50 Club price £6 95

Nothing sheep ish about this game!!! Combining zany humour with ultra smooth ultra fast graphics Sheep in Space is definitely among the top games for your 64
Your objective is to prevent destruction of your planet by destroying the enemy who are intent on stealing the remains of your quickly dwindling planet s energy Try to prevent a fatal build up of charge at the power booster

Ratings 10
Graphics 8 Originality 10
Sound 6 Interest 8
Colour 8 Order code

Space Pilot

Loading Turbo load
Joystick Optional
Category Arcade
Publisher Anirog

Price £7 95 (tape) £9 95 (disk)
Club price £6 95 (tape) £8 95 (tape)

As you roam the sky you encounter squadrons of enemy fighters and over fifty individual planes destroy them all for bonus points and then move onto the next screens
There are five screens in the game from the biplanes of 1918 to space fighters of 2001

Ratings 10 Originality 8
Graphics 8 Interest 7
Sound 7 Tape order code SPAPI
Colour 8 Disk order code SPAP D

Splat

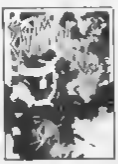
Joystick Optional
Category Arcade
Publisher Incentive

Price £6 90 Club price £5 95

Guide our hero Zippy through a treacherous maze eating grass and flowers to gain as many points as possible
However this maze is no ordinary maze It scrolls in four directions trying to trap Zippy in a corner or Splat him against a wall
An interesting game that makes a welcome change from all the shooting games Based on the well popular maze format but with some very important changes

Ratings 10
Graphics 8 Originality 5
Sound 6 Interest 6
Colour 7 Order code SPLAT

Storm Warrior



Machine Commodore 64
Joystick Essential
Category Arcade
Publisher Front Runner

BONUS £4.95 PRICE

Price £7 95 Disk £9 95
Club price £6 75 Disk £8.45

Twelve screens of arcade action that can be played at 5 different levels As Storm Warrior you must find and destroy the sacred skull that lies beyond the Light Barrier across the ocean deep in the caverns on the island of Doom On the first 4 screens you make your way to the island fighting barbarians Storm birds bats

demons and falling rocks On screens 5 to 12 you will find the Catacombs the Chamber of Evil and the Sacred Skull To reach these you must Penetrate the Antechamber Chasm of Doom the Fountains and the Tunnel of Death
A hard and tough arcade game

Ratings 10 Originality 7
Graphics 7 Interest 7
Sound 7 Tape Order code STOWA
Colour 7 Disk Order Code STOWA D

Suicide Express

Machine Commodore 64
Joystick Optional
Category Arcade
Publisher Gremlin Graphics

Price £7 95 Club price £6 36

On the Suicide Express you really have your work cut out for you! You're at the controls of an armed nuclear train Your mission clear the planet of alien life making it safe for habitation and save the human race (no less!) Guiding your train along a network of tracks at a breakneck speed while avoiding oncoming traffic and replenishing your depleted ammo supplies are the least of your worries! Matters are further complicated by killer hovercraft, green bombers and the odd space ship—all hell bent on your destruction
The lower part of the screen gives you a birds-eye view of the track and the top half gives you a side view of the action
The detail colour and perspective of the graphics are brilliant but you'll be too busy to appreciate them fully The music as the program loads is excellent and the machine code synthesized voice that announces the beginning and end of the game and also tells you your score adds the final touch to an exciting and highly recommended game

Ratings 10
Graphics 10 Originality 8
Sound 10 Interest 10
Colour 9 Order code SUIEX

Super Pipeline

Joystick Optional
Category Arcade
Publisher Taskset

Price £6 95 Club price £5 25

You are the pipeline engineer aided by your trusty workmen your job is to keep the oil flowing but the enemy has hired the Mad Plugger and his 6-legged Venusian Spiders to sabotage the pipeline
Descriptions cannot begin to do justice to the games from Taskset—they are totally original and use the powerful capabilities of the Commodore 64 in a complete state-of-the-art manner Many playing options and an all-time Hall of Fame feature

Ratings 10
Graphics 9 Originality 8
Sound 9 Interest 10
Colour 9 Order code SUPP

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Trashman

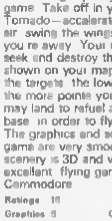
Joystick Essential
Category Arcade
Publisher New General Software

Price £7 95 Club price £6 75

Your job application having been accepted you start as Trashman by having to collect five dustbins and then empty them into the waiting dustcart
However life is not easy Your job is hampered by having to cross busy roads collect from houses guarded by fierce dogs and the impatient driver of the dustcart
A highly original game with very impressive graphics which are both smooth and lifelike Highly recommended

Ratings 10
Graphics 9 Originality 10
Sound 8 Interest 9
Colour 8 Order code TRode

Tornado Low Level



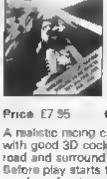
Machine Commodore 64
Joystick Optional
Category Arcade
Publisher Vortex

Price £6 95 Club price £5.20

Recently released by Vortex another high quality 3D arcade game Take off in your Tornado—accelerate once in the air swing the wings back and you're away Your mission is to seek and destroy the enemy targets shown on your map In reaching the targets the lower you dare fly the more points you will gain You may land to refuel and return to base in order to fly a new mission
The graphics and scrolling on this game are very smooth and the scenery is 3D and very realistic An excellent flying game for the Commodore

Ratings 10
Graphics 9 Originality 9
Sound 7 Interest 9
Colour 7 Order code TL64

Turbo 64



Machine Commodore 64
Joystick Optional
Category Arcade
Simulation
Publisher Lermic Systems

Price £7 95 Club price £6 45

A realistic racing car simulation with good 3D cockpit views of the road and surrounding countryside Before play starts there are a number of options to choose which race track (choice between two) gearchange (manual/automatic) number of players (1 8), and the number of laps that you wish to race
On the starting grid you are given a 3 second countdown and then the green light shows and you're off!! To accelerate push the joystick forward to brake pull it back if using manual gearchange you hold down the clutch (fire button) and push the joystick to the same position as you would in a real car If you are using the keyboard the function keys are used to change gear
In the cockpit of your Formula One car you have a speedo rev counter and gear change indicator
Dazzling 3D graphics and realistic sound effects add up to make this the most advanced driving simulation currently available on the 64 It is a pity there are no competing cars on the track nevertheless highly recommended

Ratings 10
Graphics 9 Originality 7
Sound 9 Interest 8
Colour 8 Order code TUR64

Zaxxon

Machine Commodore 64
Joystick Essential
Category Arcade
Publisher Sega soft US Gold

Price £9 95 Disk £14 95
Club price £7 95 Disk £11 95

An arcade classic You are at the controls of a space fighter and your mission is to destroy the deadly Zaxxon robot Before you can do this you must penetrate the heavily armed enemy Asteroid City Your aim is to knock out as many radar towers gun shipments and fuel dumps as possible the better your score is here the easier the next stage deep space will be
Having negotiated the perilous Asteroid City you will find yourself in deep space Here you encounter the enemy fighters that survived the earlier battle as well as enemy tracking satellites
If you manage to survive deep space then you will find yourself in another Asteroid City but this time defended by the Zaxxon robot who is armed with heat seeking missiles Only 3 direct hits will destroy the robot will you succeed to go onto another even harder mission?
The 3D graphics and smooth screen scrolling are stunning An excellent rendering of the original arcade game

Ratings 10 Originality 5
Graphics 8 Interest 7
Sound 8 Tape Order code ZAXXO
Colour 8 Disk Order code ZAXXO-D

ARCADE ADVENTURE

If you're quickly bored with arcade games yet you find pure adventures a little heavy going then how about a combination? We have a mega selection this issue including a brilliant new release from Software Projects in the form of JET SET WILLY PSI WARRIOR from Beyond and MONTY MOLE from Gremlin Graphics
Apart from Educational titles where there is room for good quality products the Arcade Aventure will we feel dominate the new releases in 1985 We're already reviewing some excellent new titles for our next issue

Arabian Nights

Joystick Essential
Category Arcade Adventure
Publisher Interceptor Micros

Price £6 95 Club price £5 05

One of the newest and best games for the 64 Featuring speech synthesized sound and high quality fast moving graphics Your quest begins on Sinbad's ship sailing the Red Sea Your task is to collect the letters that make up the word ARABIAN Once you have done this you journey the crocodile infested Annil aboard a simple raft The fierce currents sweep you into a great cavern where the bewitched genies of Al Kemed are waiting to fight you You manage to escape from the genies on a stolen flying carpet and fight your way through many perils until you reach Baghdad At the Sultan's palace you try to dodge the guards and somehow find a way in to rescue

Antiriad the processor
Great arcade/adventure packed with action and highly recommended

Ratings: /10

Graphics 10 | Originality 10
Sound 10 | Interest 9
Colour 9 | Order code ARAKN

Aztec

Machine: Commodore 64
Joystick: No
Category: Arcade/Adventure
Publisher: Beyond

Price £8.95 Club price £7.00

Another Datamost game imported by Beyond, this time an animated adventure. You search for the legendary Golden Idol in a long lost South American temple. After a perilous journey you reach the temple. Now you stand at the stairway leading down into the darkness: do you want to go in? You type yes on the keyboard and you slowly walk down the stairs. What fiendish traps await you? What jealous guardians lurk within? Will you ever return with the idol? There is no joystick control as the explorer can do so many things that joystick options would be too limited. So using the keyboard you can make the explorer turn left or right, walk, run, jump, climb, kneel, open boxes and examine and take their contents, piece and light dynamite, spin around, draw a gun, shoot a gun, and lunge or slash with a machete!
An outstanding game with great animation and unusual keyboard control. Recommended

Ratings: 10

Graphics 9 | Originality 8
Sound 7 | Interest 8
Colour 7 | Order code AZTEC

Caverns of Khafke

Machine: Commodore 64
Joystick: Essential
Category: Arcade Adventure
Publisher: Cosmi US Gold

Price £8.95 Disk £12.95
Club price £7.00 Disk £11.00

Deep in the caverns you are searching for the fabled treasure of the Pharoah Khafka. To reach the treasure you must find the five sacred seals of the door of the Pharoah's tomb.
Use your joystick to throw a rope, jump, shoot, walk, crawl or run left or right. You also can control the rickety old elevator that you use to lower yourself to the centre of the caverns. This is where most of the action takes place. Your quest for the seals is hindered by bats, scarabs, falling rocks, rolling boulders, fire fountains and volcanic lakes.
Even if you do manage to find all the seals and to enter the tomb the game is by no means over. The immortal spirit guards of the tomb are intent on guarding their treasure!! Good luck, you will need it!
Great joystick control and impressive sound and graphics. Recommended

Ratings: 10

Graphics 8 | Originality 8
Sound 7 | Interest 7
Colour 7 | Tape Order code CAVKH
Disk Order code CAVKH D

Cavelon

Joystick: Essential
Category: Arcade/Adventure
Publisher: Ocean

Price £6.90 Club price £5.05

As you ride up to a large castle you see a maiden frantically waving for help. You decide to be gallant and rescue her – but you may yet change your mind! You encounter knights and archers on your mission – but you do have the mighty Excalibur.

Ratings: 10

Graphics 7 | Originality 6
Sound 8 | Interest 7
Colour 7 | Order code CAVEL

BONUS PRICE

If you are applying to join our Club you may take up to five titles at the Bonus Price and as many as you wish at the Club Price. This offer applies during your first 60 days membership. Thereafter you may take one item at the Bonus Price provided you order three further products at the Club Price.

China Minar

Joystick: Optional
Category: Arcade/Adventure
Publisher: Interceptor
Minar

Price £7.00 Club price £5.00

Somewhere in China lie the Jade mines of the forgotten Pong I dynasty. And somewhere in these mines lives the only person to know of these mines: Wally, a local miner. Wally must brave the perils of the mines, encountering/avoiding the few hundred resident nasties. Chasms and collapsing floors to conveyor belts and laser beams. This enormous games package has everything!

Ratings: 10

Graphics 7 | Originality 6
Sound 10 | Interest 7
Colour 7 | Order code CHIN

Forbidden Forest

Joystick: Essential
Category: Arcade Adventure
Publisher: Cosmi

Price £8.95 (tape) £12.95 (disk)
Club price £7.55 (tape) £11.45 (disk)

Cosmi are rapidly establishing a reputation for the superb graphics of their games. Their Forbidden Forest is a work of computer art and the mood, sound effects help to build up the menacing atmosphere. You wander in the forest: night is falling and you hear a rustling in the bushes. Your life depends on your skill as an archer. Perhaps the blood effects are a little overdone. An original game not for the squeamish!

Ratings: 10

Graphics 10 | Originality 10
Sound 8 | Interest 10
Colour 10 | Tape order code FORFO
Disk order code FORFO D

Gilligan's Gold

Joystick: Essential
Category: Arcade
Publisher: Ocean

Price £6.90 Club price £5.05

Gold fever is running high as you try to collect the gold bags and dodge the bandits hiding in the gold mine. Collect as many bags of gold as you can and then load them onto your wheelbarrow. Escape from the bandits by jumping onto moving trucks or by using the ladders and lifts. Watch out for the mine shafts: deep and deadly!

Ratings: /10

Graphics 8 | Originality 9
Sound 10 | Interest 8
Colour 8 | Order code GLGO

House of Usher

Loading: Turbo load
Joystick: Essential
Category: Arcade Adventure
Publisher: Anirog

Price £8.95 (tape) £9.95 (disk)
Club price £6.55 (tape) £8.45 (tape)

Arriving at the legendary House of Usher (home of generations of deranged madmen) you find yourself in a magnificent hall which gives you access to a further nine rooms. When you reach one of the nine doors you may go through it, entering into an action packed arcade game. If you wish to leave the house alive you must complete each of the nine challenges in each room.
Good use of sound and high quality graphics combine to make this game an excellent value arcade/adventure.

Ratings: 10

Graphics 8 | Originality 9
Sound 8 | Interest 8
Colour 8 | Tape order code HOU
Disk order code HOU D

Jet Set Willy

Machine: Commodore 64
Joystick: Optional
Category: Arcade
Publisher: Software Projects

BONUS £4.95 PRICE

Price £7.95 Club price £6.45

The sequel to the saga of Manic Miner. Willy has gone from rags to riches and now lives in a huge mansion with so many rooms that Willy has never been in half of them before. He also has a yacht, a swimming pool and many, many friends. We meet Willy in the aftermath of an enormous party and all he wants to do is go to bed. Unfortunately his new housemaid will not let him rest before he has tidied up the mess. In the mess on there are many strange and dangerous things and Willy must avoid all the nasties so that he can collect all the bottles and glasses and get to bed.
Jet Set Willy has set new standards of gameplay on the Spectrum and now is doing the same on the Commodore. The graphics are very clear and smooth. Very addictive and highly recommended.

Ratings: 10

Graphics 8 | Originality 9
Sound 9 | Interest 9
Colour 9 | Order code JSWIJ

Manic Miner

Joystick: Optional
Category: Arcade Adventure
Publisher: Software Projects

BONUS £4.95 PRICE

Price £7.95 Club price £6.45

Willy the Miner has fallen down a disused mine shaft. He works his way through the various levels collecting keys and searching for secret treasure.
Manic Miner is a classic arcade adventure game – it has 20 caverns to penetrate, each requiring its own bit of ingenuity to ensure success. A great game!

Ratings: 10

Graphics 8 | Originality 9
Sound 7 | Interest 8
Colour | Order code MANIM

IMPORTANT

The prices in this catalogue take effect from 1st December 1984. All previous catalogues and price lists are now superceded. Logic 3 reserve the right to alter prices without notice.

Monty Mole

Machine: Commodore 64
Joystick: Optional
Category: Arcade Adventure
Publisher: Gremlin Graphics

Price £7.95 Club price £6.75

Like all of Tony Crowther's games this one is a visual delight with so much happening on the screen that you are tempted just to sit back and watch. This would of course be a mistake since fast reactions are paramount if you are to avoid the NUMerous hazards from Coal Crushers and deadly Acid Baths to Flying Pickets and Homicidal Hairsprays!
A very enthralling game but depending on your views the theme is either a well aimed DIG at the miners or else it reaches the PITS of bad taste

Ratings 10
Graphics 8 — Originality 7
Sound 8 — Interest 8
Colour 8 — Order code MM64

PSi Warrior

Machine: Commodore 64
Joystick: Optional
Category: Arcade Adventure
Publisher: Beyond

BONUS £6.95 PRICE

Price £9.95 Club price £7.95

After thousands of years of peaceful co-existence the Psi and Id creatures are now threatening mankind. Your task is to venture in to the core of their home Silo and defeat the Source. As you make your way deeper and deeper into the Silo you are confronted by Psi and Id who try to drain away your energy. Can you reverse the process and gather enough energy to be able to use the Teleports, levitate and even become invisible? You'll need all the help you can muster for the final battle against the Source!
Psi Warrior is a complex game with a great deal of variety. The graphics are good and the animated Psi Warrior very impressive indeed. It might take some time to master the wide range of controls but it is well worth it to play this unusual and interesting game

Ratings 10
Graphics 8 — Originality 8
Sound 7 — Interest 8
Colour 7 — Order code PSWA

Pyramid 64

Joystick: Optional
Category: Arcade Adventure
Publisher: Fantasy

Price £6.50 Club price £4.95

Guide Ziggy equipped with defence shield and phased plasma laser through the Pyramid which consists of 120 chambers on 15 levels. Each chamber is inhabited by one of 60 varieties of weird creatures and aliens ranging from galactic strawberries to demons and cosmic claws to mutant eyes. This game will continue to amaze you for a long time to come

Ratings 10
Graphics 7 — Originality 8
Sound 8 — Interest 8
Colour 7 — Order code PYR64

Son of Blagger

Joystick: Optional
Category: Arcade Adventure
Publisher: Alligata

Price £7.95 Club price £4.75

Treading in his father's footsteps Son of Blagger's mission is not an easy one. The journey through the National Security HQ is treacherous you will encounter ladders, slides, conveyors, killing bushes and dissolving floors and many more
Your mission is to find the golden keys—your only reliable means of escape
A high quality game in the Manic Miner tradition excellent graphics and true lasting interest

Ratings 10
Graphics 8 — Originality 7
Sound 8 — Interest 8
Colour 8 — Order code SOB

Arrow of Death 1

Category: Adventure
Publisher: Channel 8

Price £9.95 Club price £8.45

Five years of peace followed the successful return of the Golden Baton. But all is not well in the Kingdom. The Baton, once of brilliant gold, has tarnished and gloom and despair pervades the kingdom. Your quest is to seek out and destroy the source of evil. As in other Channel 8 adventures the puzzles you have to solve are baffling but infuriatingly logical

Ratings 10
Graphics 7
Originality 8 — Order code AOD1

Arrow of Death 2

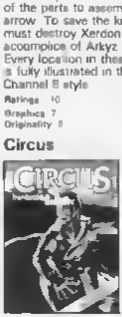
Category: Adventure
Publisher: Channel 8

Price £9.95 Club price £8.45

Having successfully completed the first part of the ARROW OF DEATH you should now have all of the parts to assemble a magical arrow. To save the kingdom you must destroy Xerdon the evil accomplice of Arkyz the wizard. Every location in these adventures is fully illustrated in the inimitable Channel 8 style

Ratings 10
Graphics 7
Originality 8 — Order code AOD2

Circus



Category: Adventure
Publisher: Channel 8

Price £9.95 Club price £8.45

Miles from nowhere you run out of petrol. Spotting a circus in a field you set out towards it looking for help. As you approach the Big Top you discover that all is not what it seems. Seventh of the Channel 8 Mysterious Adventures, this one is the most eerie and spine tingling. Not an adventure for the faint hearted! Highly recommended

Ratings 10
Graphics 7
Originality 10
Interest 8 — Order code CIRCU

ADVENTURE

Once upon a time in the days long gone when maidens had to be rescued, dragons slayed, and the only computers were mainframes there was only one computer game worth playing called ADVENTURE. Written by two IBM programmers, ADVENTURE was a fairy tale where you were the hero. Your skill and daring (not to mention lateral thinking)! determined the course of the story and whether you emerged victorious or vanquished.
Playing ADVENTURE became a cult and soon there was no self respecting computer installation without ADVENTURE hidden deep within the system files—to be played long after midnight or when the Data Processing Manager was not looking! IBM even tried banning the game at one installation—it had to be hastily reinstated when the productivity of the programming team slumped dangerously low! Today with many hundreds of computer games to choose from the adventure playing cult continues. The original ADVENTURE is now available on micros. You will find it in this catalogue under the name COLOSSAL ADVENTURE
As well as the game that started it all there are many more treats in store for adventure addicts in this issue with a number of excellent new titles. There's Dallas Quest recently released from U.S. Gold, Sherlock from Melbourne House, the much publicised Eureka and others. Just a couple of these will keep you fully involved until our next catalogue arrives!

Adventure Quest

Category: Adventure
Publisher: Level 9

Price £9.95 (tape) £11.50 (disk)
Club price £8.45 (tape) £8.75 (disk)

Starting at the Well House from Colossal Adventure you venture through a desert of shifting sands and up a mountain guarded by Orcs seeking the Dark Tower of the Demon Lord. Each of the very many locations in ADVENTURE QUEST has an elaborate description giving the game a richness of atmosphere which has become the hallmark of Level 9's adventures. The puzzles are perplexing but always manageable and the vastness of the fantasy world to be explored ensures weeks and weeks of absorbing play

Ratings 10
Graphics N/A
Originality 7 — Tape order code AD-QU
Interest 9 — Disk order code ADVQU.C

Colossal Adventure

Category Adventure
Publisher Level 9

Price £8.95 (tape) £11.50 (disk)
Club price £8.46 (tape) £8.76 (disk)

Level 9's full scale version of the original Crowther and Woods ADVENTURE but with a new and game involving over 70 new locations. This Classic is the one that started it all and a version of this quality belongs in every adventure players collection. A very good introduction to adventuring.

Ratings 18
Graphics N/A
Originality 18 — Tape order code COLAD
Interest 18 — Disk order code COLAD-D

The Dallas Quest

Machine Commodore 64
Joystick No
Category Adventure
Publisher US Gold Datasoft

BONUS £9.95 PRICE

Price £14.95 (Disk)
Club price £11.46 (Disk)

You are a detective summoned to Southfork Ranch for a meeting with Sue Ellen. She has a letter from the late Jock Ewing to Miss Ellie telling of an extremely rich oilfield in South America.
In this letter was a ring and a photo of Chugalug Jones who runs a trading post somewhere in the depths of South America. The letter explains that if anything happens to Jock Chugalug is to only give the map of the oilfield to the person who is in possession of the ring.
Sue Ellen explains that she wants to be financially independent of JR. She wants you to find the map and gives you the ring, photo and $500,000 expenses. What's more she will pay you a bonus of two million dollars if you get the map safely to her. Unknown to you or Sue Ellen JR has been listening outside the door and is out to stop you. Avoid him at all costs.
Featuring all the members of the Ewing family, outstanding graphics and sound. Recommended to all addicts of the TV series.

Ratings 18
Graphics 6 — Originality 6
Sound 9 — Interest 8
Colour 8 — Order code D[illegible]

Dungeon Adventure

Category Adventure
Publisher Level 9

Price £9.95 (tape) £11.50 (disk)
Club price £8.46 (tape) £8.76 (disk)

The sequel to COLOSSAL ADVENTURE and ADVENTURE QUEST this is the more difficult of the three and is every bit as dripping with atmosphere. Washed up on the bank of a wide river you see a gigantic Goblin's head carved into the cliff. It's insolent tongue thrust out as a bridge over the river into the entrance to the Dungeons formed by its mouth. If you have played the other two you will not need convincing. The Demon Lord is dead but will you live to plunder the Dungeons and return to Mines Tinth?

Ratings 18
Graphics N/A
Originality 6 — Tape order code DUNAD
Interest 8 — Disk order code DUNAD-D

Escape From Pulsar 7

Category Adventure
Publisher Channel 8

Price £9.95 **Club price** £8.46

Alone on the Space freighter Pulsar 7, the rest of the crew has been horribly killed by an alien creature now loose somewhere in the gigantic ship. Your only hope of escape is to find the shuttle craft and abandon the ship before the hungry monster finds you! A successful adaptation of a much used theme.

Ratings 18
Graphics 7
Originality 8
Interest 7 — Order code EP7

Eureka!

Machine Commodore 64
Category Adventure
Publisher Domark

Price £14.95 **Club price** £12.76

The undoubted attraction of this game is the £25,000 price for the first person to solve a puzzle and ring the telephone number so revealed. The product arrived just as we were going to press so only a limited review was possible. The game consists of five adventures each containing clues to the code. To get into the adventure you first have to play an arcade game—number one consists of a variety of paths down which you must travel collecting what look like barbequed chickens(!) which you drop at base. By scoring highly in the arcade game you can increase your vigour before tackling the adventure. True adventure fans will find the commands limited—the publishers excuse this by saying it saves time! The adventures are accompanied by header pictures which are a nice touch.
Is this a good game in its own right, or would it lose all interest if you look away the prize? No, we think it stands up on its own. By the way, if you do buy it and you expect to be working late into the night to solve the puzzle, you don't have to panic that someone else might have got there first. There is a 24-hour hot line for you to ring and check. Don't worry we checked—it is still up for grabs.

Ratings 10
Graphics 6 — Originality 8
Sound n/a — Interest 10
Colour 5 — Order code EUR64

The Hobbit

Joystick No
Category Adventure
Publisher Melbourne House

BONUS £10 PRICE

Price £14.95 **Club price** £11.25

Take on the role of Bilbo and explore Middle Earth where you will face danger and expect new challenges. Seek out the evil dragon and return the treasure he hoards. Excellent 3D graphics and amusing text. A must for every self respecting adventurer. Lock the door of your computer room. THE HOBBIT will keep you busy unravelling clues for several weeks to come!

Ratings 19
Graphics 8 — Originality 8
Sound n/a — Interest 10
Colour 8 — Order code HOB64

Lords of Time

Category Adventure
Publisher Level 9

Price £9.95 (tape) £11.50 (disk)
Club price £8.46 (tape) £8.76 (disk)

Evil Time Lords are interfering with Earth's history and it is up to you to travel through many time zones collecting various items you will need to defeat them. This is a wonderful new adventure from Level 9 and the elaborate descriptions of the many locations are excellent once again. From prehistoric encounters with cavemen through the bustle of a Roman Market town to the Middle Ages and beyond to the future this game is a must for history buffs and frustrated time-travellers alike.

Ratings 10
Graphics N/A
Originality 6 — Tape order code LOT
Interest 6 — Disk order code LOT D

Perseus and Andromeda

Category Adventure
Publisher Channel 8

Price £9.95 **Club price** £8.46

This adventure is based on Greek mythology. You are Perseus, son of Zeus and your task is to defeat and behead Medusa, the Gorgon. PERSEUS AND ANDROMEDA is yet another original concept for Channel 8. Like all of their adventures a great deal of attention is paid to the graphics, each location being fully illustrated.

Ratings 18
Graphics 7
Originality 6
Interest 7 — Order code PAA

Sherlock

Machine Commodore 64
Joystick n/a
Category Adventure
Publisher Melbourne House

BONUS £9.95 PRICE

Price £14.95 **Club price** £12.46

Not at all elementary, my Dear Watson.
You play the character of Holmes while other characters behave according to their own personality. The game uses a technique called English which allows you Holmes to talk to the other characters to obtain information and crack the case! Throughout the game time is displayed by a clock on the screen and the detail is unbelievable, for instance you can travel from Baker Street in a taxi to your destination but you must call the taxi, tell him your direction of travel and then pay him! The large vocabulary allows many different commands to be given but you must remember to leave time for Holmes to sleep! The game shows both text and graphical representation on the screen and can last for several months by saving it after each session. Superb entertainment, brilliantly absorbing!

Ratings 18
Graphics 7 — Originality 18
Sound n/a — Interest 18
Colour 7 — Order code SHE64

Snowball

Category Adventure
Publisher Level 9

Price £9.95 (tape) £11.50 (disk)
Club price **£8.45** (tape) **£9.75** (disk)

On board a 7000(!) location interstellar colony transport hurtling into the sun you awake from hibernation and try to save the colony from destruction. You must explore the massive ship, learn how to interrogate the ship's computer, negotiate the robot stores, construct a spacesuit out of spare parts and much more

Ratings 10
Graphics N/A
Originality 10 — Tape order code SNOW8
Interest 9 — Disk order code SNOW8 D

Streets of London

Category Adventure
Publisher Supersoft

Price £9.95 (tape) £11.95 (disk)
Club price **£8.95** (tape) **£9.95** (disk)

This adventure is in considerably bad taste and extremely funny. Mug your way around London until you can afford a rail ticket out and then... watch out world! This may be the first time you ever drink a flask of methe, get abused by a troup of boy scouts or get hospitalized by a granny!

Ratings 10
Graphics N/A
Originality 7 — Tape order code SOL
Interest 6 — Disk order code SOL D

Ten Little Indians

Category Adventure
Publisher Channel 8

Price £9.95 — Club price **£8.45**

As the train bears you closer to your destination you ponder the strange circumstances of the case. The Major reputedly left a fortune in gold which has never been found. Will you succeed where so many others have failed or will you too never be heard of again? Set in a creepy country manor house TEN LITTLE INDIANS is another eerie and atmospheric adventure from Channel 8 and is as original as it is absorbing

Ratings 10
Graphics 7
Originality 8
Interest 8 — Order code TLI

The Time Machine

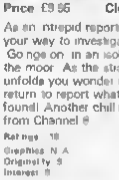
Category Adventure
Publisher Channel 8

Price £9.95 — Club price **£8.45**

As an intrepid reporter you are on your way to investigate mysterious Gongos on an isolated house on the moor. As the strange tale unfolds you wonder if you will ever return to report what you have found! Another chilling adventure from Channel 8

Ratings 10
Graphics N/A
Originality 9
Interest 8 — Order code TTM

Twin Kingdom Valley



Joystick No
Category Adventure
Publisher Bug Byte

Price £9.50 — Club price **£7.60**

A high class adventure. The object of the game is to collect as much treasure as possible. Sounds simple? Well it not as you play your path will be beset with traps and puzzles, so mind where you go!
This adventure is illustrated with excellent graphics (over 173 different screens) many with animation. The game has a very extensive vocabulary

Ratings 10
Graphics 9 — Originality 8
Sound No — Interest 8
Colour 8 — Order code TKV

Urban Upstart

Category Adventure
Publisher Richard Shepherd

Price £6.50 — Club price **£5.95**

Scarthorpe, twentieth century suburb where even the dogs carry flick knives! You must escape from this urban wasteland which is cases said then done! There are many puzzles for you to solve while avoiding hazards such as football hooligans and an over zealous police force. If you can actually stay out of jail or hospital you will discover just how hard it is to get out of this dead end town

Ratings 10
Graphics 7
Originality 10
Interest 8 — Order code UNBLP

Valhalla

Joystick No
Category Adventure
Publisher Legend

Price £14.95 — Club price **£12.95**

A really top rate adventure with superb graphics. The background scenery is highly detailed and the animation of the characters is very good. You see the characters execute your commands
There are six quests in this adventure—enough to keep any adventurer occupied for several months. A Spectrum classic now available on the Commodore 64

Ratings 10
Graphics 9 — Originality 10
Sound 8 — Interest 10
Colour 7 — Order code A 64

Zim Sala Bim

Machine Commodore 64
Joystick Keyboard
Category Adventure
Publisher Melbourne House

Price £14.95 — Club price **£12.95**

A new idea in adventure games... as well as entering text you can control a figure on screen with either joystick or keyboard. You can examine your surroundings in great detail without the usual time consuming text entering. Every location is shown in detail and you watch your character carry out any commands
You are the only surviving man from your village of Zim Sala Bim. There is no money or food left as the Sultan has plundered the village. It is your job to break into the palace, find the Sultan's bedroom and recover your gold from it
An enjoyable new adventure experience with clear graphics and good background sound

Ratings 10
Graphics 8 — Originality 8
Sound 8 — Interest 7
Colour 6 — Order code ZIM64

ARCADE SIMULATION

Do you yearn to drive a racing car, compete in the Olympics or perhaps play for England in a major international soccer match? If so then you should find an Arcade/simulation that fulfil your ambition—if not in reality then in excitement and fun. Here we give a selection of the best—chosen not only for their realism but also for added touches like the way the athlete reacts to success or failure in Daley Thompson's DECATHLON. Two titles deserve special mention—SUMMER GAMES and INTERNATIONAL SOCCER. The latter was first released this time last year but Commodore quickly ran out of stock and couldn't meet the demand until recently—perhaps that's why they've just hoisted the price up to £14.95! (we'll help a little by offering it to you at the Bonus Price of £10.95—only £1 more than it used to cost). The game itself is an excellent simulation of a football match with superb 3D graphics—highly recommended. Moving to SUMMER GAMES we can't understand why the game hasn't featured more highly in the many charts—we think it's one of the most brilliant programs currently available for the 64 albeit at a price

Beach Head

Joystick essential
Category Arcade Simulation
Publisher Ocean

Tape Only

Price £9.95 (tape) £12.95 (disk)
Club price **£8.95** (tape) **£11.45** (disk)

Beach Head is a potent combination of arcade action and simulation resulting in one of the most exciting *and* most realistic games currently available for the Spectrum. As Admiral of the Fleet you have to decide between a full frontal assault or whether to try a surprise attack, sending your fleet down a side channel which may be mined. As naval gunmen you face constant harassment from enemy fighters as you try to establish the range of the enemy's ships. Finally as tank commander you have to fight your way through the enemy held beach. If you like action you *must* get this game

Ratings 10
Graphics 10 — Originality 10
Sound 10 — Interest 10
Colour 10 — Order code BEACH

The Activision Decathlon

Machine Commodore 64
Joystick Essential
Category Arcade Simulation
Publisher PSS

Price £9.95 **Club price** £9.40

If the excellent SUMMER GAMES is a little too expensive then DECATHLON is definitely an alternative worth considering. The figures in the game are beautifully animated. You compete against the computer in the ten events of the decathlon: the 100 metres, 400 metres, 1500 metres, high jump, long jump, pole vault, shot putt, 100 metre hurdles, javelin and the discus. The 100 metres demands furious waggling of the joystick from side to side. In the high jump, long jump and pole vault the best strategy is to get as fast a run up as possible. In the discus, javelin and shot putt you must aim for a good take off angle and a powerful throw.
The throwing and jumping events all require a fair amount of timing skill and judgement. The 100 metres and 110 metre hurdles are both excellent with fast responses and smooth animation and scrolling. However, the 400 metres and 1500 metres are punishing as once started you cannot drop out of the event: the longest of which can last for ages. It is tedious and annoying to have to waggle a joystick furiously for anything up to 5 minutes. Nevertheless, the excellent graphics and sound make up for this and the option to choose which of the 10 events you enter allows you to miss them out. An excellent game, outstanding graphics, sound and colour. Great fun and good value for money.

Ratings 10
Graphics 9 **Originality** 9
Sound 7 **Interest** 8
Colour 9 **Order code** DECAT

International Soccer

Machine Commodore 64
Joystick Essential
Source
Category Arcade Simulation
Publisher

BONUS 10.95 PRICE

Price £14.95 (Cartridge) **Club price** £12.96

International Soccer is a great sports arcade game. Whether you pit your skill against the computer or another player you are going to have an exciting match. There are nine different levels to choose from, so whether you are a 4th division novice or a European Cup finalist you'll always find this game challenging. The brilliant animation guarantees lots of quick action almost like the real thing minus the foul play! So realistic that Commodore even considered selling the advertising space on the billboards. A Commodore classic, excellent family entertainment.

Ratings 10
Graphics 10 **Originality** 7
Sound 8 **Interest** 10
Colour 9 **Order code** INTSO

Spitfire Ace

Machine Commodore 64
Joystick Essential
Category Arcade Simulation
Publisher US Gold
Microprocessor

Price £9.95 (tape) 12.95 (disk)
Club price £7.96 (tape) £10.96 (disk)

An exciting 3D arcade simulation. As the pilot of a Spitfire you are battling to save London during the Blitz. The screen shows the view out of your cockpit, including the horizon and any enemy fighters. At the bottom of the screen your instrument panel shows you your speed, altitude, power and ammo remaining. In the centre of your screen is the gunsight. You can use either two joysticks or one joystick and the keyboard to fly the plane. The main stick controls your throttle and also allows you to bail out. The object of the game is to notch up as many enemy kills as possible and work your way to becoming a Spitfire Ace.
Although the graphics are chunky this simulation is good fun to play and up to four players can join in.

Ratings 10
Graphics 8 **Originality** 8
Sound 7 **Interest** 8
Colour 7 **Tape order code** SPIAC
Disc order code SP AC D

Summer Games

Machine C64
Joystick Essential
Category Arcade Simulation
Publisher Epyx, Quicksilva

Price £14.95 **Disk** 19.95
Club price £12.75 **Disk** £18.96

Summer Games is one of the most exciting and realistic games currently available for the 64. Its state of the art graphics have to be seen to be believed!!
You and up to 7 other competitors have the honour of competing in the Summer Games. The games start with the opening ceremony and then you are asked to enter your name and the country you wish to represent. The appropriate anthem is played. Next you can choose whether to compete in all or just a few of the events.
The first event is the Pole Vault. You choose the starting height for jumping and the hand grip you wish to use. Where and when do you want to plant or release the pole?
The second event is Platform Diving. The platform is 30 feet high, the tension is rising, the crowd and judges are waiting... as you dive you rotate slowly and enter nearly vertical... the judges award you three 8's and four 7's!
The 4x400m relay and 100m dash require speed, pacing and perfect timing.
The gymnastics are a test of grace and precision where you aim to get a good take off and clean body movement.
The Freestyle Relay & 800m Freestyle swimming test your strength and stamina.
Finally Skeet Shooting demands precision timing & coordination. If you are to win this test of marksmanship.
Words cannot begin to do justice to this game—get it and see for yourself. Highly recommended.

Ratings 10 **Originality** 10
Graphics 10 **Interest** 10
Sound 10 **Tape order code** SUMGA
Colour 10 **Disk order code** SUMGA D

SIMULATION

Fighter Pilot

Machine Commodore 64
Joystick Optional
Category Simulation
Publisher Digital Integration

Price £9.95 (tape) £12.95 (disk)
Club price £8.46 (tape) £11.46 (disk)

The best flight simulation for the ZX Spectrum, Fighter Pilot is now available with improved graphics and sound for the Commodore 64. This is a real time simulation based on a USAF jet fighter. It is excellent value for money as most flight simulations usually cost well over £15 and often leave you flying around with no real purpose. In Fighter Pilot there is no chance of this with flying practice, flying training and air to air combat to choose from. The air to-air combat feature is really superb. You must use your skill and limited ammunition to overcome the enemy planes if you are to return back to base.
There are training modes and your pilot skill rating can be adjusted for varying difficulty. When you become more experienced you can even add cross winds and turbulence and attempt a blind landing!
Breathtaking 3D cockpit views—recommended.

Ratings 10
Graphics 8 **Originality** 9
Sound 8 **Interest** 10
Colour 8 **Tape order code** FPI64
Disk order code FPI64 D

Hustler

Joystick
Category Simulation
Publisher Bubblebus

Price £6.99 **Club price** £6.06

This is video pool at its best. Hustler offers full control over 6 different video pool games with smooth, accurate and exciting gameplay. There is even a rendition of the theme tune from 'Pot Black'!

Ratings 10
Graphics 8 **Originality** 9
Sound 8 **Interest** 8
Colour 7 **Order code** HUSTL

Pinball Wizard

Joystick No
Category Simulation
Publisher P Software

Price £6.95 **Club price** £5.90

Play the old favourite in the comfort of your own home. Aim for the hi bumpers for maximum points and see the realistic animation as you fire the first ball. Careful use of the flippers enables scores in excess of 20 000 to be reached.
Featuring superb colourful fast action graphics and synthesized sound this game has the feel of a real pinball machine. Five skill levels, launch flippers, high score bonus and freeballs... every bit as good if not better than the real thing.

Ratings 10
Graphics 9 **Originality** 10
Sound 7 **Interest** 9
Colour 8 **Order code** PINWI

IMPORTANT

The prices in this catalogue take effect from 1st December 1984. All previous catalogues and price lists are now superceded. Logic 3 reserve the right to alter prices without notice.

Soloflight

Joystick Optional
Category Simulation
Publisher
Microprocessor

BONUS 10.95 PRICE

Price £14.95 **Club price** £12.96

Soloflight is an excellent real time flight simulator which allows you to experience the challenge of piloting your own light plane. You master take offs, landings, navigation, emergency procedures and how to cope with turbulence and other bad weather conditions.

Ratings 10
Graphics 9 **Originality** 9
Sound 9 **Interest** 10
Colour 9 **Order code** SOLFL

★ New Members—you can take up to five titles at the 'Bonus Price'

Strip Poker

Machine: Commodore 64
Joystick: Essential
Category: Simulation
Publisher: US Gold/Artwork

Price £9.95 Club price £8.45

This program plays a very good game of poker every bit as addictive as the real thing. But come off it, US Gold women play poker and computer games too and Suz and Melissa have nothing under their clothes to interest us!!! Why not have an optional Butch and Dick so that the rest of us can enjoy what is otherwise a well produced game?

Ratings /10

Graphics	9	Originality	8
Sound	6	Interest	8
Colour	7	Order code	STRP

ARCADE STRATEGY

Raid Over Moscow

Machine: Commodore 64
Joystick: Essential
Category: Arcade Strategy
Publisher: US Gold/Access

Price £9.95 Club price £8.45

Raid Over Moscow is a vast game with 8 different sequences. S.A.C. (Strategic Air Command) headquarters alerts you of a nuclear attack. As squadron commander of a U.S. Defence Space Station you must lead your commandos through a great number of very dangerous missions (getting out of the space station is hard enough!). If you succeed in locating and destroying the launch sites you can carry on to Moscow and try to knock out the very heart of the Soviet defences. Raid Over Moscow is a game that requires a great variety of skills. There is a practice option so you can brush up on your weaker points. It is a difficult but engrossing game with impressive graphics and lots of action.

Ratings /10

Graphics	8	Originality	8
Sound	8	Interest	8
Colour	8	Order code	ROM

3D Time Trek

Joystick: Essential
Category: Arcade Strategy
Publisher: Anirog

Price £5.95 Club price £4.45

One of the few survivors of the planet Corllian following a raid by space pirate you have vowed to avenge their murderous attack and end their galactic tyranny. Your ship is armed with computers and sensors to help you—but your mission is not easy.
A good Startrek game making full use of both keyboard and joystick.

Ratings /10

Graphics	7	Originality	8
Sound	7	Interest	7
Colour	7	Order code	3DTM

STRATEGY

With these strategy games you can practice your powers of judgement shrewdness and planning. The five selections shown here offer a variety of challenges.

Battle for Midway

Machine: Commodore 64
Joystick: Essential
Category: Strategy
Publisher: PSS

Price £9.95 Club price £8.45

Battle for Midway puts you in command of the US Pacific fleet six months after the Japanese attack on Pearl Harbour.
It is your task to stop the Japanese invading Midway Island and to sink as many of their aircraft carriers as possible.
First you are given a large scale map showing an overview of your own forces from which forces can be manouevred, aircraft launched, landed and sent on attack missions. Secondly you have constantly updated details of those forces, down to the last fighter. Thirdly you are given a visual representation of the battle and your forces at every stage.
Definitely not a simple game but designed for the person who enjoys a stimulating intellectual challenge. Beginners will be glad to learn that there are 3 different skill options! Recommended.

Ratings /10

Graphics	6	Originality	8
Sound	7	Interest	8
Colour	7	Order code	BATMI

The Boss

Machine: Commodore 64
Joystick: No
Category: Strategy
Publisher: Peaksoft

Price £8.95 Club price £7.60

If you've ever wanted to manage a football team and experience the thrills and spills of team management at first hand—this is the game for you! Select position buy and sell players, pay on the poppsa on and plead with the bank manager when gate returns are down. In short everything a football league manager has to do. Each week you are given a goal by goal report of the match, news of injuries, suspensions and general ups and downs of the club which are guaranteed to give you ulcers! Can you take your team to promotion to the next division maybe even to the top of the league or will you be relegated this season?
In short The Boss has got just about everything, making it one of the most complete simulations of any kind for a home micro. It is so engrossing it might just keep you out of the football ground on Saturday!

Ratings /10

Graphics	n/a	Originality	9
Sound	n/a	Interest	9
Colour	n/a	Order code	BOSS4

Orelbs

Machine: Commodore 64
Joystick: Essential
Category: Strategy
Publisher: US Gold/Synsoft

Price £8.95 Club price £7.95

On the screen you are presented with an atomic flip grid. This is a grid in which you have to complete the component square by flipping the sides into place. When you have done this the square will start pulsing. You must complete all the squares possible in that particular grid. You play the part of Dreib. There are also a few trellabers in the grid and these try to undo your work. There are eight rounds after which you may enter the Dreibish Corridor. Here you must free every Dreib you can touch avoiding the gargoyles that lurk in the dark.
An unusual game requiring fast reflexes and logic.

Ratings /10

Graphics	6	Originality	7
Sound	6	Interest	7
Colour		Order code	ORELB

Football Manager

Joystick: N/A
Category: Strategy
Publisher: Addictive Software

Price £7.95 Club price £6.95

A must for football enthusiasts! Learn to select your team and cope with injured players, then watch in nail biting anticipation as a match is played without your intervention! If you've chosen your team skilfully you could win the match and move up the league or progress a stage towards winning the F.A. Cup. As in real life success breeds success. Your gate receipts climb and you have more money to spend on new and better players. You start at the bottom of the fourth division and once you reach the top of the first you've proved your skill as a football manager. Then you go on to the next level.

Ratings /10

Graphics	6	Originality	10
Sound	n/a	Interest	10
Colour	5	Order code	FOO64

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Psytron

Machine: Commodore 64
Joystick: Optional
Category: Strategy
Publisher: Beyond

Price £9.95 Club price £8.45

Less than human far more than mere computer the PSYTRON controls the massive Batula 5 complex. The Psytron has to be prepared to defend the planet against sudden attack.
Your mission is to survive the attackers until the final conflict. Smoothly scrolling amazing animation six levels of play and a comprehensive manual makes this an enormous games package.
A demanding game you will want to play again and again.

Ratings /10

Graphics	6	Originality	8
Sound	7	Interest	9
Colour	8	Order code	PSY64

UTILITY

Ultisynth 64

Joystick No
Category Utility
Publisher Quicksilva

Price £14 95 **Club price** £12 00

The Commodore 64 has the most advanced sound capability of any current home microcomputer Its SID (Sound Interface Device) chip gives the 64 in theory at least many of the features of commercially available synthesisers But the programmer working in BASIC can only scratch the surface of the SID chip s enormous versatility and—until the availability of Ultisynth—you needed to be a combination of hardware expert machine code genius sound engineer and musician—to persuade the Commodore 64 to perform Ultisynth is a user friendly toolkit which will allow you to control sound envelope waveform pulsewidth filter synchronisation ring modulation pitchband layering glide and many other capabilities of the SID
If you want to compose music produce realistic explosions make birdsong imitate rain thunder flying saucers or simply produce the voice of a piano violin organ guitar harpsichord woodwind or percussion instrument—then this is the product for you With Ultisynth you will never again think of your 64 as just another home computer !

Ratings /10

Graphics N/A	Originality 10
Sound 10	Interest 10
Colour N A	Order code ULT64

MusiCalc 1

Machine Commodore 64
Manufacturer Waveform Corporation

Price £45 00 **Club price** £40 00 (disk only)

The state-of-the-art Sound Synthesizer and Sequencer for the 64 The synthesiser allows you to change and control the sound of the music while it is playing providing independent control over all three voices of the SID Starting with 32 preset sounds you can experiment endlessly The control panel uses graphics intelligently to enable you to see at a glance the current settings of all the 70 sliders and switch controls
The score grid of the sequencer shows you what notes MusiCalc is playing At any time you can access 32 preprogrammed scores or melodies Simple commands allow you to quickly edit songs and rhythms You use the sequencer to tell the synthesizer what to play A special keyboard mode allows you to play and record music from the 64 s keyboard and edit while you listen
If you want to untap your own musical creativity and that of your 64 then this is the package for you

Ratings /10

Graphics 9	Originality 10
Sound 10	Interest 10
Colour 9	Order code MUSC1

MusiCalc 2

Machine Commodore 64
Manufacturer Waveform Corporation

Price £31 00 **Club price** £27 00 (disk only)

MusiCalc 2 reads the music you make on your MusiCalc 1 Sythesizer and Sequencer and allows you to see it in standard musical notation complete with bars staffs clefs and notes A hardcopy function allows you to print out your score If you have MusiCalc 1 and a Commodore graphics printer then MusiCalc 2 is a must

Ratings /10

Graphics 9	Originality 10
Sound n a	Interest 10
Colour n a	Order code MUSC2

MusiCalc African/ Latin template

Machine Commodore 64
Manufacturer Waveform Corporation

Price £15 00 **Club price** £13 00 (disk only)

Give your music the African beat or go Latin with this disk of pre-programmed rhythms Needs MusiCalc 1

Ratings /10

Graphics n/a	Originality 8
Sound 10	Interest 8
Colour n a	Order code MUSC3

APPLICATIONS

The Commodore 64 with a Disk Drive and a compatible printer makes up a very useful system for the 64 owner who wants to get some serious work out of his system or who wishes to explore the possibilities of using a personal computer in his/her business
Here we review the 4 programs which have established themselves as the undoubted leaders for business applications on the Commodore 64

Easyscript

System Required Commodore 64 Disk drive Printer
Publisher Commodore

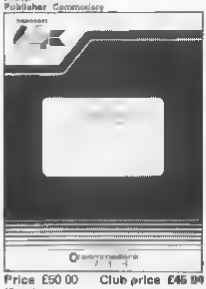
Price £75 00 **Club price** £67.50 (Disk)

Developed by Precision Software from their Superscript program—for the Commodore PET—Easyscript is the best wordprocessor for the 64 combining the best facilities available on other popular wordprocessors and then adding some more!
Of course all the usual facilities for editing modifying deleting and inserting words lines and paragraphs are supported as is the facility for sending out individualised standard letters to a number of recipients Extra features include the ability to use the 40 column Commodore 64 screen as a window and scroll horizontally through a wide document and a very useful facility which allows access to name and address data stored in Superbase 64 files

Order code EASSC 0

Easyspell

System Required Commodore 64 Disk drive Printer
Publisher Commodore



Price £50 00 **Club price** £45 00 (Disk)

The spelling checker for Easyscript Features a 32 000 word vocabulary choice of English or American English spelling and the ability to add you own words
Unique word matching facility prints lists of possible words if only a few letters are known Essential for cheating at crosswords!

Order code EASSP 0

Microsoft Multiplan

System Required Commodore 64 Disk drive Printer
Publisher HesWare

Price £35 00 **Club price** £30 00 (Disk)

Microsoft Multiplan is the most powerful electronic spreadsheet available for microcomputers with the MS DOS operating system like the IBM PC and Sirius Now incredibly it has been converted by HesWare to run on the 64 retaining all its essential features including 256 rows by 63 columns built in arithmetic financial and trigonometric functions 8 screen windows alpha numeric sorting inter worksheet working and flexible formatting
If you work with forecasts mathematical models budgets or other numeric data this is the spreadsheet to get

Order code MULTI 0

Superbase 64

System Required Commodore 64 Disk drive Printer
Publisher Precision Software

Price £99 99 **Club price** £89 99 (Disk)

A very user friendly and powerful

database management system. Simple applications can be set up very easily for jobs such as mailing lists, membership records, indexing a library or a collection of valuable objects. Yet Superbase can also be regarded as a programming environment in its own right, which adds 50 commands to those available from BASIC. The more experienced user will benefit from Superbase's facility to handle up to 15 files at a time, and will find the package an excellent tool to cut down the time needed to create tailor made applications for almost any purpose.

features

built in help facility
Max no. of records—limited only by disk size
Max no. of fields—127
Max record size—1,100 characters per record

Order code SUPER D

BOOKS

"A guide to playing the Hobbitt"

Publisher
Melbourne House

Club price £3.45

A necessity for all adventurers still wrestling with "The Hobbitt". A well produced 76-page book containing illustrations of the screen graphics as they appear on the TV screen. The first 20 pages of the book are devoted to the vocabulary and the main places in the program. There is a helpful chart showing possible directions of travel from various places. The remainder of the book is dedicated to the "Tourist's Guide to Wilderland", which is split up into every conceivable situation with special passwords to enter areas otherwise inaccessible. It explains where you would end up by travelling in certain directions from all possible locations. Melbourne House claim this to be their best selling book—its easy to see why!

Order code GTH B

Mastering the Commodore 64

Machine
Commodore 64
Publisher
Melbourne House

Club price £6.45

An excellent text for the programmer who wants to get the most from his 64. All the techniques in the book are comprehensively explained and then illustrated by being used within sample programs—the book is worth getting for these alone!

Just some of the subjects covered include: print formatting, logical operators, hexadecimal notation, arrays, binary search, memory management, the SID chips and envelope control, user defined characters, multicolour mode, extended colour mode, hi resolution graphics, split-screen using interrupts, an introduction to machine code. 383 pages packed with usable information, recommended.

Order code MAS64 B

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Sound and Graphics

Machine
Commodore 64
Publisher
Melbourne House

Club price £5.95

An exciting new book containing much original material. It makes the 64's sophisticated sound and graphics capabilities accessible for both the first time user and the more experienced programmer. All the features are explained in easy to understand language and involve the reader programmer in the design and coding of a full scale game which uses all the elaborate graphics and super sound potential of the Commodore 64. The book also supplies general purpose machine code routines like scrolling, Raster interrupt schedules and music routine.
Learn all about Sound and Graphics as you work your way through the program provided—and enjoy the game you will create.
The book will enable you to harness the capabilities of the Commodore 64, to the full.

Order code SGH B

HARDWARE

As a result of the huge demand for hardware, we've increased our range in this issue and in February there will be even more—especially for those of you who have asked about printers. We have also had many enquiries for business software for the Commodore 64. If you use Commodore for running company accounts, payroll etc, we'd like to hear which packages you are using and how you rate them? Please drop us a line.

C2N Cassette Deck

Machine Commodore 64, Vic 20
Manufacturer Commodore

Price £44.95 Club price £39.95

The 1530 Datasette Unit Model C2N (to give it its full title) is an essential accessory, enabling you to load pre recorded software into your computer, as well as allowing you to record your own programs on standard cassette tapes. It has an auto-stop function at tape end with a red light showing when data is being saved, and a footage counter to help you locate a particular file quickly. The cassette connects to your computer and receives its power through one lead only.

Order code C2N

Game Paddles

Machine Commodore 64, Vic 20
Manufacturer Commodore

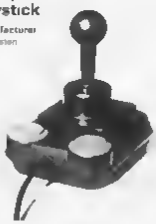
Price £13.50 Club price £11.95

A number of games, in particular many of the Commodore ROM cartridge ones, require the use of paddle controllers rather than joysticks. (The name paddle comes from the old Atari type bat and ball games where the bat on the screen looked a bit like a paddle. The controller in fact has a cylindrical handle, which is ideal for steering cars (as in Le Mans) or negotiating fast moving pathways.

Order code PADDL

Competition-Pro Joystick

Manufacturer
Kempston



Price £14.95 Club price £13.45

An excellent joystick for the Commodore 64 or VIC 20. Top of the Kempston range. It features two arcade style video fire buttons for right or left hand control. No true arcade fan should be without one.

Order code JOYST

Currah Speech 64

Machine Commodore64, Vic 20
Manufacturer [illegible] Components

Price £29.95 Club price £27.95

If you really want to bring your Commodore to life, then this is the accessory to do it. Integral ROM based software means that as soon as you connect up and start typing the television starts talking! Yes, type the speech string "Hello" hit the enter key and the voice comes straight back at you.
The Currah is an allophone speech synthesizer, using individual sounds strung together to build up intelligible speech. This is different to some speech synthesisers which have a fixed vocabulary. The Currah can synthesize *any* word in the English Language.
An invaluable aid to programmers who haven't time to look at the screen but who will soon *hear* if they hit the wrong key. (The voice can be disabled if required.)
The unit comes with a free game and demonstration cassette.

Order code CUR64

Please read all notes carefully

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FORTH

Developed to control radio telescopes, Forth has a lot to offer the 64 programmer — it's fast, efficient and flexible. Dave Janda gives an overview of Fig Forth, the version available for the 64

The first point to note about Forth is that it doesn't have instructions but rather words. The essential difference is that the instruction set of a language like Basic is fixed whereas new words can be added to Forth simply by defining them in terms of existing ones. Every version of Forth comes with a set of words that make up the basic nucleus of the language including words to perform arithmetic screen I/O memory operations and so on.

Forth words are held in a dictionary. For example VLIST is a Forth word used to display the contents of the dictionary to the screen. In Forth any combination of words can be used to make up a program. No line numbers are used and if a program of any real size is to be written some type of editor is used to prepare the source code.

These features are no big deal: many of them can be found in other languages but Forth differs from others in that you're not limited to the words in the dictionary you can make up your own!

To see how programs are constructed, look at the following:

```
GRASP GRASP HANDLE
TURN TURN HANDLE
OPEN PULL DOOR TOWARDS YOU
ENTER WALK THROUGH
DOOR GRASP TURN OPEN ENTER.
```

The first word is the new word to be defined and the rest is the definition itself. This isn't strict Forth but it does show how individual words can be executed from a main word — DOOR.

So who needs Forth? Well it's been described by some as the high level low level language and by others as the ultimate programming tool applications for Forth programs range from games design to control applications such is its flexibility.

Soft Stack

The concept of the stack is fundamental to Forth programming. Practically every operation in Forth affects the stack in one way or another down to simple operations like adding two numbers together.

The stack is an area of memory which is used as a temporary storage space for numbers. The stack operates on a First In Last Out basis. Any numbers added to it increase the size of the stack any numbers removed from it (by printing them for example) reduce its size.

Placing — or pushing — numbers onto the stack is very simple — to put 10 on the stack simply enter:

```
10 < RETURN >
```

More than one number can be placed on the stack at a time:

```
1 234 22 2 < RETURN>
```

This would also enter the four numbers on the stack. Remember the stack operates in a first-in last-out principle so our stack looks like this:

```
TOP      2
        22
       234
         1
BOTTOM   10
```

To display the top item of the stack the Forth word . (pronounced dot) is used. This removes the top item of the stack and prints it to the output device — CRT printer or whatever. So if we enter <RETURN> then 2 will be displayed. As with numbers more than one Forth word can be entered on each line of input so:

```
<RETURN >
```

would display:

```
22 234 1 10
```

A couple of points worth bearing in mind first all Forth words must be separated by at least one space. Second once a value is printed it is removed from the stack that is destroyed. Finally try displaying another value by using the dot ?STACK EMPTY should appear which means exactly that.

Actually placing values on the stack can be done in two modes from within the program or at run time:

```
ADD 5 8 +
```

The word ADD first places the two numbers 5 and 8 on the stack and then adds them and prints the result. However it's more flexible to do the following:

```
ADD +
```

In this case Forth would expect the values to be entered when the program is run. The form is 5 8 ADD. Forth would then apply the operator + to the values 5 and 8. The end result though is the same whether the values are entered in the program or at run-time.

Go Forth & .

Forth requires any numbers to be operated on to be present on the stack. This is the reason for the order in which Forth arithmetic is done — that is 1 2 ADD instead of 1+2. The operator always follows the numbers it is to work on and this method is known as Reverse Polish Notation (RPN). It takes some time to get used to but remember that Forth must have numbers to operate on before any calculations can be done. Here are a few expressions in standard algebraic (infix) notation and their RPN (postfix) equivalents:

● FORTH FACTS

Forth was written during the 1960s by Charles H. Moore. Moore was working on using computers to control machinery. He found that neither of the two main programming languages of the time Fortran and Algol were particularly suited to the task so he decided to write his own language specifically for this one area.

Perhaps the best known application of the language is the control of radio telescopes. One of the earliest major Forth controlled systems was the National Radio Astronomy base at Kitt Peak Arizona where it is still in use today. Other astronomers began using the language including the radio observatory at Jodrell Bank and its popularity grew rapidly from there.

The primary advantages Forth offers to the hobbyist are speed — some Forth programs running almost as fast as machine code — and flexibility, the user able to define new keywords as required.

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FORTH

LANGUAGE LAB

```
A+B-C                A B + C -
(A+B)*C              A B + C *
A*B-C/D+E            A B * C D/-E +
```

Numbers that are placed on the stack can be in two forms single or double precision 16 bit single precision signed numbers can have a range between −32768 to +32767 whilst the unsigned numbers are in the range 0 to 65535 32 bit double precision numbers also have two ranges signed numbers between −2147483648 to +2147483647 and unsigned numbers between 0 and 4294967295 There is no floating point in Forth

To distinguish between single and double precision numbers double precision numbers have a decimal point within the number for example 62538 34 The decimal point makes no difference to the way the number s stored, but we can make use of it Within Forth there are several system variables One of these is called DPL (for Decimal Point Location) and holds a number corresponding to the position of the decimal point within the double number To access the value of DPL two words need to be used First, dot is used to print the value but you must use @ to put the value of the variable on the stack

```
WHERE DPL @
123 45 WHERE <RETURN>
2
```

This shows that the decimal point is two places from the right of the number The clever programmer can make use of this and by multiplying or dividing by the right power floating point arithmetic for the four basic operators shouldn t be too hard to implement

Forth uses the four basic operators + − * and / on 16 bit numbers Things are a little complicated for double precision as there are no corresponding words Only D+ to add two double precision numbers is defined in standard Forth but it is possible to define new words that will cater for the other three operators (D− D* and D/)

It is often necessary to manipulate the values of the first few places on the stack One reason for this is that many Forth words (such as dot) destroy the top value of the stack so being able to duplicate the value before destroying it would be a great help Fig-Forth has six stack manipulation words and three associated user variables to allow the programmer to do this

The word 'DUP simply duplicates the top value of the stack so if the only value in the stack was 34 'DUP would leave 34 34 This is very handy when you want to print a value without destroying it If you DUP then the stack still has the original value on top DUP can also be used with other words or itself to produce interesting results

```
DUBLE DUP +          4 DUBLE 8
SQUARE DUP *         4 SQUARE 16
CUBE DUP DUP * *     4 CUBE 64
```

(Note that we use DUBLE since DOUBLE is a Forth reserved word)

Other stack manipulation words include OVER DROP, SWAP and ROT OVER is similar to DUP except that it leaves a copy of the second number on the stack Sometimes you ll find you ve got a number on top of the stack you don t need so DROP will get rid of it A very handy word is SWAP which as its name implies swaps the top two values allowing you to get to the second number on the stack

Dictionary Definitions

Strictly speaking you don t program in Forth you define words To define a word two Forth words are used to tell the system you re doing so namely and As a trivial example say we wanted to define the word GREETING to print HELLO this would be it

```
GREETING "HELLO"
```

The is used before the Forth word to be defined This is then followed by the name of the word in our case GREETING Finally the signifies the end of the definition This is called a colon definition and once the is entered and the return key pressed GREETING is added to the dictionary that is it becomes part of Forth From now on to print HELLO simply enter GREETING

The word just defined can be used like any other word in the Forth dictionary even within other words

```
MESSAGE GREETING  HOW ARE YOU!"
```

The new word MESSAGE uses GREETING and whenever MESSAGE is executed GREETING will be too

Basic has the good old FOR NEXT loop and Forth has the DO LOOP Here is a Basic program with the Forth equivalent

```
10 FOR I=1 TO 10
30 PRINT "Y64"
40 NEXT I
```

```
Y64 11 1 DO CR  "Y64 ' LOOP
```

A couple of things should be noted First the end value of the DO LOOP is always set one above the end, secondly the word CR is equivalent to the PRINT statement — it forces a carriage return and line feed

The Basic example uses the variable I as an index A DO LOOP in FORTH uses a hidden' index which can be accessed The Forth word I copies the value of the index to the stack where you can do with it what you will

```
10 FOR I=1 TO 1000
20 PRINT I
30 NEXT I
```

```
COUNT 1001 1 DO CR I  LOOP
```

As well as being able to increment the loop index by one (the default) it is possible to change the step and increment or decrement desired

Standard Fig-Forth Words.

Stack manipulation
DUP DROP SWAP OVER ROT — DUP >R R> R 30 SP! SP@

Comparison
< > 0=

Arithmetic
+ D+ − 1+ 2+ */ MOD/MOD*/MOD*/U* U/ MAX MIN ABS DABS MINUS DMINUS AND OR XOR

Memory
@ ! C@ C! ?+! MOVE CMOVE FILL ERASE BLANKS

Control structures
DO LOOP I DO +LOOP LEAVE IF ENDIF IF ELSE ENDIF BEGIN UNTIL BEGIN WHILE REPEAT EXECUTE

Terminal I/O
KO D R CR SPACE SPACES " DUMP TYPE COUNT — TRAILING STERMINAL KEY EMIT EXPECT WORD

Conversion
BASE DECIMAL HEX NUMBER <. # # S S> HOLD SIGN #>

Storage (often differs between systems)
LIST LOAD BLOCK B/BUF BLK SCR UPDATE BUFFER FLUSH EMPTY BUFFERS

Word defining
VARIABLE CONSTANT CODE <BUILDS DOES>

Vocabularies
CONTEXT CURRENT FORTH EDITOR ASSEMBLER DEFINITIONS VOCABULARY ' VLIST FORGET

Compiler
, C ALLOT IMMEDIATE LITERAL STATE COMPILE

Forth consists of a number of pre-defined keywords The standard Fig-Forth words are shown above The Forth programmer can define further words using the standard set to create a vocabulary limited only by memory For example

```
SQUARE DUP *
```

defines the word SQUARE to multiply a number by itself Thus 2 SQUARE produces the result 4 This ability to define new keywords makes Forth one of the most flexible languages available on the 64

FORTH

In Basic and other languages it is often handy to use nested loops. This is allowed in Forth but Fig-Forth doesn't allow you to access the index of the outer loop — normally. But the following definition will

```
: JR > R> R> R SWAP > R SWAP > R SWAP
> R
```

It is now possible to access the index of an outer loop

```
10 FOR J=1 TO 10
20 FOR I=1 TO 10
30 PRINT I " ",J
40 NEXT I
50 NEXT J
```

```
: INDEX 13 1 DO 13 1 DO CR I . J . LOOP LOOP
```

Fig-Forth has a number of control structures as well as a number of comparison words. The simplest of these control structures is the BEGIN ... UNTIL which repeats actions until a condition is met. Finally Forth also has two variations of the IF ... THEN construct. The first is similar to the Basic equivalent but the order of things is not! The Forth structure is condition IF action ENDIF. So the test is done before the IF rather then after it. An example of this is

```
10=IF .EQUALS TEN . ENDIF
```

The second form includes the ELSE condition IF action1 ELSE action2 ENDIF

Forth In Focus

An organised approach to programming is required when working in Forth which is a good thing. A good deal of planning is required and the language encourages top-down (modular) programming.

Those of you who use languages that don't allow direct control of the stack may be horrified at the thought of Forth but there's no need to be. The ability to manipulate the stack gives greater control and flexibility. The only real problem is that it's all too easy to crash the system.

The lack of floating point arithmetic is no problem at all. Many commercial applications that manipulate pounds, shillings and pence do so with integer arithmetic. If you need floating point the required words can be defined without too much difficulty. For those who can't be bothered to write the necessary words many Forth packages come with the option of floating point extensions.

For us 64 users practically all the Forth packages available have words to use colour, sound and graphics — including sprites. Graphic games that run many times faster than the Basic equivalent can be written simply because Forth is a very fast language. Romik Software's Fig-Forth is particularly fast, though it achieves this speed by sacrificing some of the more sophisticated features supported by other packages.

In some ways Forth is similar to machine code: it is a fiddly language demanding that the programmer control the machine at system level, but makes up for this by its speed and efficiency. But where Forth really comes into its own is in its flexibility — the ability to define keywords as and when required. This if nothing else should recommend it to hackers.

FORTH'S CURRENTLY AVAILABLE FOR THE 64

64 Forth (Hesware)
Whitelightning (Oasis Software 0934 419821)
C64 Forth (Handic Software 0344 778800)
Forth 64 (Audiogenic Ltd 01 290 6044)
Tiny Forth (Adamsoft 0706 524304
Melbourne Forth (Melbourne House 01 940 6064)
Fig Forth (Romik Software 0753 71535)

USER GROUPS

Forth Interest Group
PO Box 1105
San Carlos
CA 94070
USA

Fig UK hold regular meetings in London at the South Bank Polytechnic. Membership entitles you to attend these as well as receive FORTHWRIGHT, the group's newsletter.

Keith Goldie Morrison
Membership Secretary Fig (UK)
14 St Albans Mansion
Kensington Court Place
London W8 5QH

ACTION REPLAY

No. of players · Joystick · Joystick optional · Cassette · Disk

FLYERFOX

Tymac/£14.95 disk £9.95 cassette

This month's Golden Gas-chamber award for tasielessness soove and beyond the call of duty goes to Tymac's Flyerfox. The object of the game is to escon a commercial airliner through disputed airspace and fend off attacks by MiG 25 fighters. Cash in on Korean air disasters while stocks last and avoid the rush.

This is in fact a pity because the airliner scenario, apart from being gratuitous, actually detracts from the game itself. Flyerfox is basically a good old fashioned flight simulator with a fire button. The graphics are wonderful, the joystick control is nippy and then, of course, there is the sound.

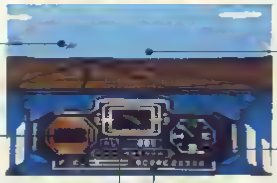
The major selling point of this game — and other Tymac games still in the pipsnne — is the inclusion of a software-based speech synthesiser (that's a speech synthsseser without the sapense of an interface to you, John).

OK, so it sounds like a dalek with a cold, but the words are still beciphenable and it adds that elusive touch of realism to the game. Anyway, the speech in Flyerfox is supposed to be a short wave radio transmission which are notorious for their Lo-Fi.

Realism is also a bayword in the dogfights. The enemy fighters are as slippery as fish. When you finally do get a fix on them, a bleeper sounds and you can release your heat-seeking missiles — which may or may not find their target. I suspect that the programmers consulted real fighter pilots on this aspect of the game — it's that convincing.

Less convincing is the airliner. You only ever see the back end of it, you can't overtake it to engage the enemy and it can't land but only be shot down. This means that from the beginning you know you're chasing a doomed Jumbo, which somehow takes awsy some of the satisfaction of the game!

Flyerfox will sell and sell. I only wish they had chosen a different scenario.



ERIK THE VIKING

Mosaic Publishing/£9.95

Horse game, shame about Erik.

From one horned beast to another. The Saga of Erik the Viking is based on a book by Terry Jonas of Monty Python.

In this story of everyday nordic folk you, as Erik the Viking, must take time out from your usual simple pursuits of raping and pillaging to rescue your kidnapped family. Along the way, you discover a ship called the Golden Dragon crewed by an unsavoury bunch with names like Sven the Strong, who sings of gold as simple vikings are wont to do.

You set sail to a rocky shore where you enter a passage. Up until now, life had been fairly easy — not at all the kind of brain bender we have come to expect from Level Nine. Poor fool, this is where the trouble starts.

From now on things start to get sticky and the only advice from the Help command is to write off to Mosaic for a cluesheet (thanks Mosaic). Should keep the Post Office busy, I suppose.

This is a nice little game in the mould of the Hobbit. The graphics consist of static scenes. These are pleasant enough for all that, although the program is a bit slow to draw them on the screen. Still, worthwhile enough and will probably encourage people to buy the book (which is probably the whole point).

ANCIPITAL

Llamasoft/£7.50

Goat to exit

First off we have the latest invitation from Jeff Minter to perform unnatural acts with furry animals. In this game you play the part of the Ancipital — half man, half goat and mutant camel (it says here). With Ancipital Jeff has bowed to the inevitable pressure to produce an adventure-style arcade game with assorted rooms for you to visit, and meet all the weird and wonderful things to shoot at that we've come to expect from Llamasoft.

After, for example, loading the program into RAM (geddit? Oh, please yourselves), you find yourself shooting bananas et attacking apples. In another room guinea pigs drop multi-coloured unmentionables at you. I worry about Jeff Minter.

Passing through a wall, you get an extra three camels worth of strength and the object of the game is to neutralise all of the rooms. As in most such games there are things to be picked up — in this case, six key camels and five goats of power.

What can I say? Ancipital is another winner from the man that brought you Mutant Camels, but I do wish he wouldn't foist quite so much of his acid ramblings on us. Someone call a doctor. On second thoughts, make that a vet.

ACTION REPLAY

HEADACHE
Firebird/£2.40

Soft in the head

Headache is a game where you as nervous Ned have to take various thoughts etc to and from the brain. As Ned is brought to you by Firebird, a subsidiary of British Telecom — that of crossed lines and misdirected calls fame — you can see that Ned is a man with problems.

On his travels Ned has to avoid the Throbs as they spill down from the brain (I know the feeling) and prevent the Headbanger (Hi Jeff) from reaching the brain and causing migraine-inducing graphics.

The screen consists of a head containing the usual platforms and ladders (*it's usual for heads to contains platforms and ladders?? Ed*). There are eight levels of play to choose from which merely consist of the head getting bigger reflecting the personality of someone attempting a higher level. Actually I found the higher levels easier as there was more room to move about.

Despite the hype in the title screen about this game being highly addictive I found it entirely forgettable. Headache has nothing new to offer anyone. The ladders were thin and awkward to get up. The brain at the top was very small probably indicating the imagination of the programmers. Brain Death nurse reach for the life support switch.

STAR RACE
Mastertronic/£1.99

Cheap thrills

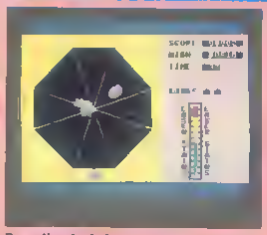
Star Race retails at £1.99.

Having got the good points of the game over with let's get on with the review. There are five zones for you to guide your spaceship through each one as naff as the previous one. In the first level you end up being chased around the screen by sprites. In the second level you have to avoid an asteroid swarm — easy for anyone who has been avoiding galaxians and the like for any length of time. In the third you have to stay in the tractor beam of a mother ship while avoiding yet more asteroids. In the fourth you Look, Surya, do I really have to review this garbage? Oh alright then.

The game is written in Basic. I know this because the first time it failed to load and I was able to list it. Mind you I doubt whether Mastertronic is going to have many sleepless nights worrying about pirates since no-one would be interested in copying a program they could probably write better themselves.

At a time when the suspicion is that software is overpriced merely to keep certain programmers in Porsches the aim Mastertronic is laudable but it's still a case of you get what you pay for.

EXODUS
Firebird/£2.40



Down the pipehole

Next one off the stack is another offering from Firebird. Well I thought it can't be any worse than the last one ok so I was wrong.

I'm a fair minded man. If someone has tried to insult my intelligence once I don't hold it against them, but Firebird is trying my patience. In this game (I use the word advisedly) you're supposed to move around the rim of a vortex. It's news to me that a vortex is a black hexagon. You then have to blast the assorted nasties which emerge from said Vortex. There are all the usual kind of wacky sprites you might expect from the pea-brained imagination of the people who wrote this nonsense. It's even got mutant camels in it — there's originality for you.

The rumour appears to have got round many software houses that there's a killing to be made by regurgitating the half digested remains of other people's ideas. I've news for these people. *Y64 readers are not that stupid.*

It's bad enough that I have to sit through this garbage. I'd hate to think anybody else might do the same.

The best vortex you'll get out of this game is by flushing it down the pan.

RIVER RAID
Activision/£9.99

Making a splash

If people must copy ideas they can at least do it properly and if possible add something to the game. River Raid is an example of the acceptable face of theft. It's a variation on that hoary old chestnut River Rescue a game that I was never particularly fond of but something of a classic in its day.

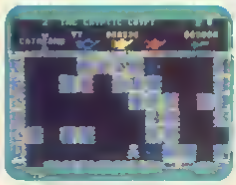
The idea is that you fly a plane which banks and swerves nicely along a river picking up fuel tanks and blasting away at the various bridges hot air balloons submarines etc. You crash if you fly into the shore or the enemy craft (I've heard of low-level flying but crashing a plane into a submarine?).

As you progress up the levels the river gets narrower and the enemy turns nastier and starts shooting back at you (damn cheek). The relative positions of fuel shore and nasties gets more awkward making life that much harder. The graphics are not going to set the world alight but are smooth and control is easy. I found the game more interesting than the original. It should keep joystick jockeys reasonably entertained which is more than can be said of most of the stuff reviewed so far.

ACTION R E P L A Y

CUTHBERT ENTERS THE TOMBS OF DOOM

Microdeal/£6.95



A tomb with a view

Microdeal s answer to Alfred E Neuman stars in Microdeal s answer to Atic Atac Cuthbert Enters the Tombs of Doom is one of those games where you wander round various rooms collecting treasure (which in my day used to be called burglary) avoiding invitations from the assorted ghosts and sadistic saxophones to join the r club As well as treasure hidden in the walls there are also keys to be collected to get you through the locked doors into other rooms full of goodies You often can t carry more than one key at a time so you re obliged to open one door and then go back and get another key This of course involves a deal of to ing and fro-ing Still all good knockabout fun

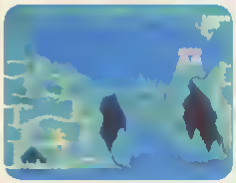
There are of course extra points for blasting the ghosts However the blaster only works from side to side This is a decided disadvantage if you are attempting to go up or down a corridor full of ghosts!

When the inevitable happens and you are touched by a ghost you d better hope your energy lamps are full else you lose a life

Apart from a few quirks this isn t a bad little arcade adventure and is cheaper than a lot of similar games

FIREQUEST

The Edge/£9.95



The thinking man's arcade game

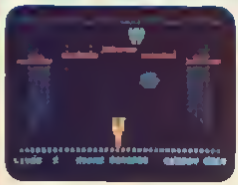
Back in the days when homo sapiens was just a gleam in Arthur C Clarke s eye life was not a bed of roses In fact spending some time with Ugh the hero of Firequest makes you wonder how man could spare the time to evolve into the pinnacle of creation that you yourselves are

The tra is of Ugh are billed as a series of adventures which they ain t What they are is a series of tricky arcade games You must guide Ugh through his everyday business (collecting firewood swinging on creepers to collect fire from the volcano and bring it back to the cave — that sort of thing) while avoid ng all manner of primeval perils such as lightning and sabre-toothed tigers And all w thout so much as a club to protect you

The background graphics are rather crudely drawn although Ugh himself is a rather handsome fellow as befits the father of humanity The game is good and fast and the controls are responsive and easy Mind you they need to be the way those giant spiders move But being fast on the joystick isn t enough and the player has to develop a strategy to get past the obstacle then run like hell

STORM WARRIOR

Front Runner/£7.95



Rider on the storm

Meanwhile back at the sword and sorcery the Storm Warrior prepares to do battle Armed only with a neon light bulb borrowed from the Return of the Jedi he needs no allies his strength and agility will prove him worthy Ere is he talking about me?

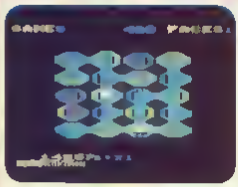
Yes my son you have been chosen to find and destroy the Sacred Skull First you must pass the Guardian to the Light Barrier and travel to the Island of Doom It s first on your left past the barbarian on the Bridge of Eternity you can t miss it Oh and don t forget to put on clean underwear

Actually this game conta ns something you may not have come across before It's called originality Now don t get too worked up — there s not much but it is there At the first level you have to bounce this ball of light past a guardian I know it doesn t sound much on the page but it s really quite intriguing From then on it s warding off the usual D&D nasties with your bulb I mean sword

Not a bad little game which is worth half an hour of your time to play though perhaps you might think twice before buying Still give it a go

ZENJI

Activision/£9.95



Mix & maze

Let us see that in vast blackness beyond the beyond the elements assemble around the source Come again Chief ? It was cosmic goo like th s that put me off playing this game But Confucius he say you must must not judge software by its insert and I was pleasantly surprised to find a very nifty little game inside

Without resorting to the homespun Chinese philosophy left over from old episodes of Kung Fu the game is basically this There are bits of path scattered around the screen The player has to spin the bits around so that they all connect to a square in the centre within a specified time This makes it more of a logic puzzle than a game but you don t have to be Mastermind to solve it Of course no m ze type game would be complete without the nasties chasing you round and this game is complete One of these is called the 'flames of Desire' which emit illusions This sounded interesting so I ran straight into the first one I found but it killed you like all the rest I was most disappointed

After kissing so may frogs this game is a prince No whizz bang graphics or aliens to stomp just a very absorbing game

Mirage

SOFTWARE & DISTRIBUTION

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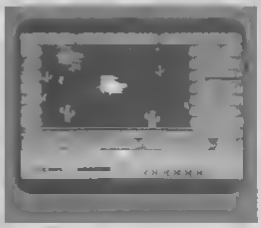
NOTE WE HAVE MOVED TO NEW PREMISES

APACHE RAID
Omega/£1.99


Hair raising action

Injuns! Form the wagons into a circle, hold on to your scalps and pour me a shot of that old Red Eye and fetch me six-shooter joystick.

As a change from the usual fare of green-skinned aliens, Omega at no extra cost bring you red-skinned Apaches to shoot. As a simple homesteader, escaping war and oppression in the old country, you have set forth to carve a new life out of the American Indian.

Surrounded in your log cabin with your Kinfolk (shown at the bottom of the screen as six smiling faces), you must first shoot the Indians riding past the window in true John Wayne fashion. This bit reminded me of nothing so much as potting ducks at the fair.

When Indians begin dropping in through the window, they must be hit before they hit the floor. If they get away, one of your smiling family will be scalped. This is tricky as the cursor gunsight slowly falls as you are trying to aim.

While it lasts, this is one of the most enjoyable games I've played in this month's batch. The trouble is there's not much to it. There's Indians riding past your window and there's Indians dropping through your window and that's it.

A good game but not apache on what it could have been.

STAR EGGS
Mirrorsoft/£6.95


The yolk's on you

A game from Maxwell House (the newspaper, not the coffee). Star Eggs is based on an idea borrowed loosely from Alien. You, as an intrepid starship captain (not another one!), must save the Earth from being destroyed by yet more ghastly aliens.

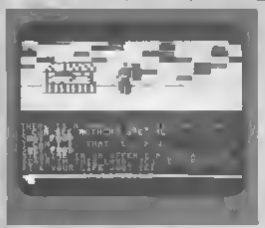
So, stifling a yawn you press the fire button and away you go. The first scene in this unknown involves charging around trying to destroy the guardian ships. The trouble is, whoever built your ship forgot to fit the brakes, which means you develop this tendency to shoot past the aliens before you get a chance to aim at them. Not only that, but if you haven't blasted them with in a certain time they get impatient and start flapping their wings at you.

Once you've shot down (or crashed into) three ships, you find yourself on the mother (or should that be hen?) ship. Then it's up and down the now traditional platforms destroying the eggs before they hatch.

Should any of the eggs hatch, small pterodactyl-type things emerge and shoot at you before flying out of the window to destroy the earth and civilisation as we know it and so on.

The graphics programming is workmanlike, but sadly bereft of ideas. You'd be cracked to shell out for this.

ZIM SALA BIM
Melbourne House/£9.95


Turkish delight

Continuing in the Melbourne House tradition of producing high quality now-get-out-of-that type games, the latest offering from the sign of the red hat is Zim Sala Bim.

There is, of course, the usual collection of brain bending puzzles. By way of a change, this one also comes with three dimensional graphics and the character of Zim Sala Bim who wanders around the desert and the palace looking gormless. It's your job to get him in and out of the palace with Sultan's treasure without getting him killed.

The adventure starts off outside the palace walls and the first task is to actually get inside. The way in is not immediately obvious to say the least and, if I hadn't been told how to do it, I'd probably have taken several days over the problem.

Don't let that put you off (I'm lousy at this sort of thing anyway), the crafty player with plenty of patience will probably get great satisfaction out of solving the problems.

A good game to play over the Christmas period when you've had enough of the turkey and the relatives. Another winner from Melbourne House.

BEST OF THE REST

Turbo 64 from Limbic Systems is a racing car simulation. I was unable to try this one due to the LS's policy which requires players to go through some absurd anti-piracy routine before being allowed to play the game they have shelled out money for (£7.95 to be exact).

From Firebird, whom we all know and love, comes **Zulu**, a tuppenny ha'penny cross between Pacman and Sabre Wulf. For review, read about the other firebird products above. **Zulu** is of the same standard.

The Stainless Steel Rat Saves the World is another of those you've read-the-book, now play the game adventures. In fact you get the book thrown in. Steal hard.

Raves from the grave, and the grave, **Ah Diddums** is a loytown game from the defunct Imagine. At £5.50 not as bad as I thought it would be, but would you be heard asking a shop assistant for **Ah Diddums**? **BC Bill** (also £5.50) is more stone age software. Collect wives and food, avoid dinosaurs, bring up babies. Ah, the simple life. Frenetic but tedious.

Catastrophes from Mirrorsoft (£6.95) is a sort of software disaster movie. The idea is to build a hotel on an island paradise while avoiding earthquakes, floods, lightning and storms. Island paradise?? Roll on next month.

For those who have had enough of these new fangled games, Supersoft software have brought out **Chess** and **Draughts** both at £7.95. Interested readers will be happy to know your humble reviewer managed to slaughter the computer at both (although the Chess program had me on the ropes for a while).

While we are on the subject of old fashioned games, Live Wire have brought out some games called **Invaders at £6.50**. If you can guess which well known arcade game this is based on, please send the answer on a postcard to Sunlock, Deansgate, Manchester. Oh Gawd! Nostalgic software. I give up!

Computerama 64 the source

ACTIVISION
Beach-Head
Pitfall
Zaxxon
ALLIGATA
Blagger
Guardian
Loco
Pyjamarama
Son Of Blagger
A&F
Lightning Egg
ADVENTURE INTERNATIONAL
Planet Cave
Voodoo Castle
AMIROS
PC Fuzz
Jungle Mission
Colossomates
Flight Path 737
Krazy Kong
House Of Usher
Moon-Buggy
AUDIOGENIC
Lodgward Language
Tapes
Mirror Beast
Beast
Surrel Barrow
Blagger
Pinball Thrillis
Surrel Barrow Chess
Alice In Video Land
AVS
System 400

U.S. GOLD
Leaderboard Series
Caverns Of Khafka
Gunship Challenge
Smokey
Pooyan
Raiders Moon
Sword Hoard
Gold Digger
Gunfighter
Sword For Sorcerers Rock
Rollercoaster
Bullet Speed
Mega Mamoths
Strip Poker
Shipwreck
Pub
Bruce Lee
Spitfire Ace
F 15 Strike Eagle
Nato Commander
BUG BYTE
Tom Kingdom Valley
C C S
Combined Cross 2 5
CREATIVE SPARKS
Black Planet
Blasta
Tower Of Evil
DUBNELL
Harrier Attack
Jungle Thrillis
EUROBYTE
Mr Mashema
GILSOFT
GREMLIN GRAPHICS
IMAGINE
Cobra Cruiser
Pedro
INCENTIVE
Splat
INTERCEPTOR
Rollers Knights
Jeffrey Wally
Spidy & The Fly
Chump Manor
Wheelie Walter
Burger Time
Aquatrax
Wallie Goes 7
Phantomas
K TEL
Lord Of Midnight
LLAMASOFT
Mega Mania
Minoman
Minoman Revenge
Sheep In Space
LEGEND
Valhalla
MERLIN
Wimbledon 64
Pole Position
Range Squash

MELBOURNE HOUSE
Hobbit
MICRO POWER
Lytton on Mission
Pete in The Factory
Stones
Swoop
MICROSOFT
Jewels Of The Ca
OCEAN
Shogun Gold
Andorid II
Batman Birds
Johnny & The Jumpys
High Noon
Road Blitz
Daley Thompsons Decathlon
Hunchback
Mr Wimpy
Chinese Jugger
Cavelon
The Evil Dead
PARAMOUNT
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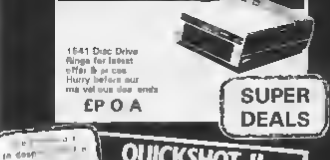

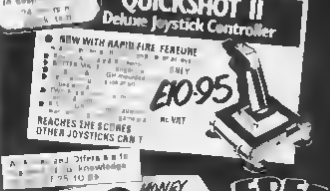

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One of the most useful aids to writing friendly programs is a technique known as windowing or split-screen scrolling. This involves splitting the screen into several independent sections. In an adventure, for example, the main section would be the 'conversation', another might be a limited map, another might be an inventory and yet another the score. Brian Rushby presents a utility to facilitate windowing in your own programs. This month we begin with the machine code generator and the down scrolling programs. The demonstration programs for scrolling up, left and right will be published next month.

Split-Screen Scrolls

If you've ever wanted to create scrolling windows on the 64 and given up because of the lack of information on the subject, this suite of machine code programs by Brian Rushby is just what you need.

The Programmers Reference Guide informs us that, although the VIC II chip will perform the smoothing of the scroll, the scroll itself must be carried out using a machine code program. The purpose of these programs is not only to provide the required screen shift utilities, but also to provide a facility for scrolling selected areas of the screen.

Using the demonstration programs, you'll be able to define whether you want the whole screen scrolled or just a selected part of it, leaving stationary sections for permanent or replaceable text. The routines can then be used in your own programs as will be shown later.

The smoothing action of the VIC II chip has been omitted from these programs since the only way to use it effectively is to use raster interrupt techniques. However, a flicker-free scroll is obtained by setting the scrolling register to a maximum or minimum value as required to provide a mask behind which the new data is to be PRINTed or POKEd. The colour memory is, of course, scrolled in unison with the screen memory.

It's worth noting that a full screen scroll in Basic would require about 2000 PEEKs and POKEs — one good reason for using machine code!

The machine code loader

This simple listing shows how the machine code program should be loaded after it has been generated. It is, in effect, just three lines (the REMs can be omitted). The easiest way to use it is to omit the END statement and make it the first three lines of your own program.

The routine needs to be saved onto disk or tape. If using tape, position it just before the machine code generated by the following program.

```
100 L=L+1
70 REM USE LINE 80 IF LOADING FROM DISC DELETE LINE 100
80 IFLD=1THENLOAD"SCROLL M/C",8,1
90 REM USE LINE 100 IF LOADING FROM CASSETTE DELETE LINE 80
100 IFLD=1THENLOAD"SCROLL M/C",1,1
120 END
```

The machine code generator

This Basic program generates the machine code, and then gives the option to save the code to tape or disk. A checksum facility is incorporated to ensure that the program is generated correctly. This listing should be typed in (REM statements may be omitted) and saved to tape or disk as a BASIC program before RUNning (it is always a good idea to SAVE programs before RUNning them).

If using tape, the Basic Program itself should be saved on a different tape or on the reverse side of the machine code loader above. The machine code generated by this program should be saved just after the above machine code loader on the same tape.

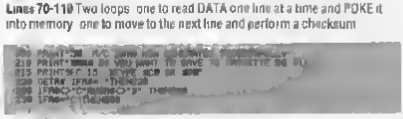
When you RUN the program the code-generation will take a little time. You'll be informed of any typing errors and, once you've corrected these, given the option to save the code to tape or disk. The program will be saved under the name SCROLL M/C.

If the machine code is not successfully generated, you'll be told which line number is incorrect. Do *not* correct the version in RAM, but switch off and on to reset, reload the saved version and correct and resave this before attempting to re-run. That way you're safe in case the faulty listing causes the machine to lock up.

Line 60 Sets the screen and border colour

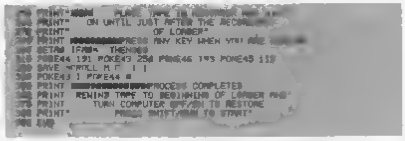
Line 69 Sets the start of memory

Lines 70-110 Two loops: one to read DATA one line at a time and POKE it into memory, one to move to the next line and perform a checksum

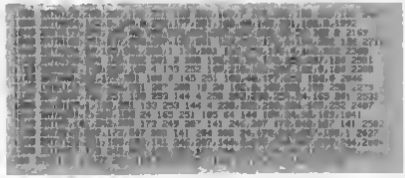


Lines 200-230 Informs the user of a successful RUN and gives the option to SAVE to disk or tape

Lines 235-245 SAVE to disk option



Lines 250-900 SAVE to tape option



```
1000 DATA 160 253 34 165 251 141 48 193 201 16 240 144,0 230 251
1010 DATA 252 230 254 230 243 207 208 219 230 242 207 173 242 207 215
1020 DATA 201 29 208 176 96 169 0 141 234 207 173 241 207 141 233
1030 DATA 207 173 240 207 141 237 207 173 239 207,141 236 207  057
1040 DATA 173 238 207 233 1 133 251 133 253 141,208 207 176 2448
1050 DATA 208 237 207 208 236 207 173 237 207 136,253 173 236 2771
1060 DATA 207 136 254 162 8 232 169 0 157,251 169,1,149 251 2153
1070 DATA 169 0 157 253 169 1 145 251 94 169 201 169,48,133 1557
1080 DATA 251 133 253 144,6,230,252,208,204,96,208,207 208 214
1090 DATA 208 234 208 173,204,207,208,208,169,1,96,0,0,0,0,0,0,0,0
```

Line 1000 DATA for machine code

Once the machine code data has been successfully generated this Basic program need not be used again. All work can now be carried out using the machine code program itself.

The demonstration programs

The demonstration programs show how the machine code scrolling subroutines can be used in your own programs. They're all very similar, so you may find it more convenient to type one in, save it and then edit it to create the others. The demonstration programs can be saved to disk or tape. If saving to tape, we recommend that you save them along with the machine code generator Basic program.

The margin positions are defined here as the extreme edges of the scrolling area. For example, entering 10 and 20 means that positions 11-19 will scroll. To scroll the whole screen vertically (for instance) you would need to enter 41 for the right margin and 0 for the left.

An item-sed breakdown of the demonstration program lines above 145 is given below with an indication of how to use the m/c scroll routines in your own programs.

Ideas

Now you've got the suite of machine code subroutines and seen the demonstrations, the possibilities are limited only by your imagination!

It's possible, for example, to have two or more columns scrolling at the same time. In the same direction, in opposite directions, crossing at the same speed or at different speeds. The sizes of the scrolls can be different and they can overlap. It's also possible to have one column inside another, either moving in the same direction at different speeds or moving in the opposite direction!

Please note that the machine code routines use the memory locations 53247-53226 ($CFFF — $CFEA) for their own purposes, so steer clear of these locations in your own programs.

DOWN SCROLL

```
50 A$="12345678901234567890123456789012345678901234567890"
60 B$="0         1         2         3         4"
70 C$="[redacted]"
```

Lines 50-70 Defines the variables used to PRINT margin scaling

```
80 POKE53280,14:POKE53281,0
```

Line 80 Sets border and screen colours

```
90 PRINT"[redacted]"
95 PRINTA$+B$
```

Lines 90-95 Clears screen and PRINTs scales

```
100 INPUT"[redacted]INPUT RIGHT MARGIN 1-41
    [redacted] R
105 IFR<1THENPRINT"[redacted]NO SCROLL ?[redacted]
        "GOTO100
107 IFR>41THENPRINT"[redacted]SCREEN MARG
IN=41 MAX[redacted]":GOTO100
108 IFR=41THENPRINT"[redacted]"LEFT$(C$,38))"
[redacted]":GOTO110
109 PRINT"[redacted]"LEFT$(C$,R-1)"[redacted]"
110 INPUT"[redacted]INPUT LEFT  MARGIN 0-3
[redacted]L
```

```
115 IFL>38THENPRINT"[redacted]NO SCROLL
 ?[redacted]:GOTO110
117 IFL<0THENPRINT"[redacted]SCREEN WID
TH =[redacted] MIN[redacted].GOTO110
118 IFL=0THENPRINT"[redacted]":GOTO125
119 PRINT"[redacted]"LEFT$ C$,L-1)) [redacted]
125 PRINT"[redacted]
"
130 PRINT"[redacted] PRESS
ANY KEY TO CONTINUE
140 R=R-1 D1=R L:IFD1<1THENPRINT"[redacted]SCRO
LL WIDTH LESS THAN 1 RE-RUN[redacted]:END
145 GET K$:IFK$=""THEN145
```

Lines 100-145 Inputs margin positions (see below)

```
150 RM=191-40+R
160 POKE53247 RM:POKE53246,D1:POKE53245,
40-D1
```

Lines 150-160 Passes selected margin parameters to memory for use by machine code

```
180 POKE53265,PEEK(53265)AND247
```

Line 180 Sets screen to 24 raw mode

```
190 POKE53265,PEEK(53265)AND248
```

Line 190 Sets scrolling register to a minimum to provide a mask for new DATA to be PRINTed or POKEd under

```
200 PRINT"[redacted]"A$
```

Line 200 Clears screen and PRINTs scaling

```
260 FORI=LTOR-1:POKEI+1024,32:NEXT
```

Line 260 PRINTs spaces to clear area where the new DATA is to be placed. (If this is not cleared then the old DATA will continue to scroll)

```
275 X=RND(1)*(R-L)+L+1024
```

Line 275 Calculates random position (between margins) for graphics character to be POKEd

```
280 IFRND(1)<0.5THENPOKEX,42:POKEX+54272
,1
```

Line 280 POKEs graphics character and colour to the position determined by x in the line 275, but only 50 per cent of the time as determined by RND(1) being less than 0.5

```
290 SYS49152
```

Line 290 GOSUB machine code routine to scroll down

```
300 GOTO260
```

Line 300 Creates a loop to continue the scrolling

Load in the machine code routine and run this demonstration program. You'll be asked to enter the margins and then given a demonstration. When you're satisfied that the correct margins are set, stop the program using the RUN/STOP key.

To use these settings in your own programs, you need to do the following -

1 After running, find the values of the variables used in line 160 (do this by entering PRINT RM, D1, D1-40 in direct mode). These values can then be used instead of the variables. The three POKEs need only be set once in your program unless you want to change the size of the scroll while the program is running.
2 Set the screen to 24 row mode as in line 180
3 Set the scrolling register to the minimum as in line 190
4 Clear the area where the new data is to be scrolled from
5 Introduce the new data
6 SYS 49152

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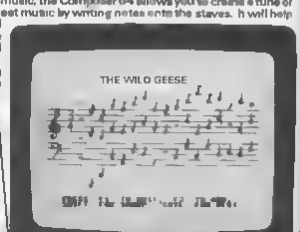

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ROUTINE ADVENTURES

Malcolm Serbert *presents more invaluable routines for adventure programmers*

• The Colour Routine

The Colour Routine is a small routine which can be called at the start of the adventure, and at any time during the game by typing "colour". It simply allows the user to choose the colours for text, background and screen, which is all important in a text based adventure. Many of the games currently on the market do not have this facility, and sometimes the user is left with colours which are a strain on the eyes.

The listing simply accepts a keypress to increment the colour registers, and as it uses so little memory, it should be included in any game.

```
10 PRINT"■" POKE53281,4 POKE53280,0
```

Line 10 Sets screen and background colours, and clears screen.

```
20 GOSUB1000
```

Line 20 Gosubs to actual colour routine.

```
30 PRINT"■ END OF SUBROUTINE.",STOP
```

Line 30 Prints message (end of routine).

```
1006 CO=0
```

Line 1030 Sets counter to nil (variable CO).

```
1010 PRINT"■ TO CHANGE COLOURS'
1020 PRINT" PRESS KEYS (1-4)"
1025 PRINT PRINT PRINT' THEN CONTINUE TO
 PRESS (RETURN)"
1026 PRINT" UNTIL YOU OBTAIN YOUR CHOSEN
 COLOUR."
1030 PRINT PRINT" 1) SCREEN  COLOUR."
1040 PRINT PRINT" 2) BORDER  COLOUR."
1050 PRINT PRINT" 3) TEXT    COLOUR."
1060 PRINT PRINT" 4) RETURN TO GAME."
```

Lines 1010-1060 Prints menu.

```
1065 CO=CO+1:IFCO>4THENCO=0
```

Line 1065 Increments counter by 1 and checks for out of range numbers.

```
1070 INPUTA IFA<1ANDA>4THEN1010
```

Line 1070 Inputs variable A and checks for out of range numbers.

```
1080 ONAGOTO1100,1110,1120,1130
```

Line 1080 On value of A gotos the appropriate line to change colours.

```
1090 GOTO1010
```

Line 1090 Goes back to menu.

```
1100 POKE53281,CO:GOTO1010
```

Line 1100 Pokes colour into screen register, then returns to menu.

```
1110 POKE53280,CO:GOTO1010
```

Line 1110 Pokes colour into border register, then returns to menu.

```
1120 POKE646,CO GOTO1010
```

Line 1120 Pokes colour into text register, then returns to menu.

```
1130 RETURN
```

Line 1130 Returns from subroutine.

• The Text Formatting Routine

The Text Formatting Routine is really a small utility which can be incorporated into the adventure game and used as a subroutine. For example the location descriptions can be held in either strings or data statements, and there is no need to worry about formatting. The routine will take care of all screen display. Simply set the string to be displayed as (Z) string upon entry into the subroutine, i.e. at the start of the format routine. Z string = (whatever string you wish to display).

In the example Z string is a predefined string which is not formatted then it is displayed after using the subroutine. The actual subroutine and display code is contained in lines 200-350. A loop is set up which starts to look for a space in the string, at the 38th character. If not found, the pointer comes backwards along the string, until a space is found. It then sets that portion of the string to SE string (CO) and goes back to search the next 38 characters. When the whole string has been dealt with, the lines 240-270 will print out strings held in SE string, using a small loop then the final part of Z string is printed ending with a full stop.

```
10 PRINT"■" REM CLEAR & PRINT BLACK
20 POKE53281,5 POKE53280,4
```

Lines 10-20 Clears screen, prints black text, pokes screen & border colours.

```
60 PRINT"■ PRESS (*) TO SEE AN EXAMPLE TE
XT"
```

Line 30 Prints instruction.

```
70 GETA$ IFA$<>"*"THEN70
```

Line 70 Waits for a key to be pressed.

```
74 PRINT"■"
```

Line 74 Clear to screen.

```
75 PRINT" BEFORE FORMATTING."
76 PRINT"
```

Line 75 Prints message.

```
80 Z$="THIS IS A SENTENCE WHICH HAS NOT
BEEN FORMATTED USING THE AUTOMATIC"
90 Z$=Z$+" TEXT FORMATTING SUBROUTINE, A
ND THE RESULT IS A VERY UNTIDY SCREEN"
100 Z$=Z$+" DISPLAY. BUT IT CAN BE PRESE
NTED TIDILY WITHOUT ALTERING THE WORDS"
110 PRINTZ$
```

Line 80-110 Places text into Z string. (Prints unformatted version of Z string).

```
120 PRINT PRINT" NOW PRESS THE + KEY"
```

Line 120 Prints instruction.

```
130 GETA$ IFA$<>"+"THEN130
```

Line 130 Waits for key to be pressed.

```
170 PRINT
180 PRINT" SAME SENTENCE AFTER ROUTINE'
190 PRINT"
```

Line 170-190 Prints message.

```
200 L=LEN(Z$) LZ=0 CO=1
```

Line 200 Sets variables. L=length of Z string, CO=line counter, LZ=the pointer which counts the number of characters already dealt with, so that the next bit to be formatted will start at LZ+1.

```
210 FORX=38TOLSTEP38
```

Line 210 Sets up loop to start at 38th character, in steps of 38.

```
220 GOSUB300
```

Line 220 Gosubs to routine that prepares the strings.

```
230 NEXT
```

Line 230 End of loop.

```
240 FORT=1TOCO-1
```

Line 240 Starts loop to print out the formatted text.

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```
250 PRINTTAB(1/SE$(X)
```

Line 250 Prints the lines of formatted text now contained in SE string

```
260 NEXT
```

Line 260 Ends the loop

```
270 PRINTTAB(1)RIGHT$(Z$,L-L
```

Line 270 Prints the last part of Z string which does not need formatting

```
280 GET A$ IFA$="""THEN280
```

Line 280 Waits for a key to be pressed

```
290 STOP
```

Line 290 Stop End of demonstration

```
900 M$=MID$(Z$,X,1)
```

Line 300 Sets M string as a pointer to search for space in line of text Subroutine that prepares strings in correct lengths(SES)

```
310 Y$=MID$(Z$,(LZ+1),%-LZ)
```

Line 310 Sets Y string to be the line of text being searched

```
320 IFM$=" "THENSE$(CO)=Y$ GOTO340
```

Line 320 If the pointer finds a space at 38th character then set SE string (CO) as the line of text which will be printed goto line 340

```
330 X=X+1 GOTO900
```

Line 330 Assumes space not found at 38th character decrease loop step by 1 I E go back to text line and search backwards from 38th character until a space is found

```
340 LZ=X CO=CO+1
```

Line 340 Sets counter LZ to = X This is current position in the string being formatted so that next formatting will take place from LX+1 I E from the next unformatted character
Increase CO by 1 Rem line counter

```
350 RETURN
```

Line 350 Returns from subroutine

● The Thief Routine

The Thief Routine shows how a thief can be introduced into the adventure game as a subroutine which can be called either randomly or by using a variable which increases every time the player moves i e PL=PL+1 If PL=25 then GOSUB Thief routine

The demonstration shows the player holding 10 objects and the thief holding none By pressing the (*) key a thief will appear and steal a random object In the actual game a check would be carried out to make sure that the object was being carried The description of the thief is also randomly generated to add the impress on of a bunch of thieves rather than one

The actual routine is contained in lines 300 400 The description is chosen by line 330 and printed out in the remaining lines In the actual game the code would differ slightly the thief would appear then a check would be made to see which objects were carried The thief would take an object and run off with it for instance the flag would be altered from carried (say 1) to hidden (say location 99)

```
20 DIM OB$(10),OB(10)
```

Line 20 Dimensions arrays for 10 objects & 10 object numbers

```
30 FORX=1TO10 READOB$(X),OB(X) NEXT
```

Line 30 Reads in the array data

```
40 DATAROPE,1,BOTTLE,1,TORCH,1,SWORD,1
50 DATAAXE,1,DAGGER,1,CLOAK,1,MATCH,1
60 DATADIAMOND,1,RUBY,1
```

Line 40 60 The data

```
70 DIMTH$(15) FORX=1TO15 READTH$(X) NEXT
```

Line 70 Dimensions the array for description of Thief read in data

```
80 DATACRAFTY,SLY,QUICK,NASTY,SMALL
90 DATABLACK,GREEN,BROWN,RED,YELLOW
95 DATAIMP DWARF,BAT,GNOME,RAT
```

Line 80 95 The data

```
110 PRINT"■" POKE53281,5 POKE53280,6
```

Line 110 Clears the screen print colour black poke screen & border colours

```
120 PRINT"PRESS '*' KEY TO TEST SUBROUTINE'
122 PRINT PRINT PRINT"YOUR OBJECTS"
124 PRINT"
```

Line 120-124 Prints instructions

```
130 PRINT'FORX=1TO10
```

Line 130 Starts loop

```
140 IFOB(X)=1THENPRINTOB$(X)
```

Line 140 If object number =1 then print out the objects carried by player

```
150 NEXT
```

Line 150 Ends loop

```
160 PRINT PRINT"YOUTHIEF OBJECTS"
165 PRINT"
```

Line 160-165 Prints message

```
170 FORX=1TO10
```

Line 170 Starts loop

```
180 IFOB(X)=0THENPRINTOB$(X)
```

Line 180 If object number =0 then print out objects held by thief

```
190 NEXT
```

Line 190 Ends loop

```
210 GETA$ IFA$<>"*"THEN210
```

Line 210 Waits for keypress

```
220 GOSUB300 GOTO120
```

Line 220 Gosubs to stealing subroutine Go back to instructions

```
300 A=INT(5*RND(1)+1) B=INT(5*RND(1)+1)
```

Line 300 Sets variables A & C to a random number each between 1-5

```
310 C=INT(5*RND(1)+1)'S$=
```

Line 310 Sets S string to equal a space

```
320 D=INT(10*RND(1)+1)
```

Line 320 Sets variable D to a random number between 1-10

```
330 T$=TH$(A)+S$+TH$(B+5)+S$+TH$(C+10)
```

Line 330 Sets T string to the Thief description by using variables A B C as pointers to choose words randomly from the TH string array Rem A choosen from first 5 data words B from second 5 C from last 5

```
340 TH=0 PRINT"SUDDENLY A ",T$
```

Line 340 Sets TH =0 Counts the objects stolen

```
350 PRINT"DARTS FROM THE SHADOWS INTENT"
360 PRINT"ON STEALING FROM YOU."
370 PRINT"AND ESCAPES WITH
```

Line 350-370 Clears screen print message

```
380 IFOB(D)=1THENPRINT"A "OB$(D) TH=TH+1
OB(D)=0
```

Line 380 Uses variable D to choose a random object to be stolen Check that the object is held by the player I E it the object no =1 if the player has the object then steal it and set the object number =0 I E the thief now has it Now increase the object counter by 1

```
400 IFTH=0THENPRINT"NOTHING."
```

Line 400 If the object counter is 0 then print message (nothing taken)

```
410 PRINT PRINT RETURN
```

Line 410 Returns from subroutine

●The Object display and inventory.

The Object display and Inventory is a double routine showing how objects can be displayed in the locations chosen and accounted for in the player s inventory when they have been taken from the location

The example shows a location containing 10 objects these have been numbered so that the user can note the action taking place The user s invited to choose an object number and this object will then be taken from the object display and will appear in the player s inventory or vice versa if the object is being carried

Subroutine for Object & Inventory display

```
10 POKE53281,6 POKE53280,6 PRINT"
```

Line 10 Pokes screen & border colours Clear screen

```
50 DIMOB$(10),OB(10)
```

Line 50 Dimensions arrays for 10 objects and 10 object numbers

```
60 FORX=1TO10 READOB$(X),OB(X) NEXT
```

Line 60 Reads data into arrays

```
70 DATA3AXE,1,2OOLI,1,1HORN,1,1FLUTE,1
75 DATA1CAPE 1 2OIL,1,2ICE,1,1RAFFLE,1
80 DATA1TORCH,1,4NOTE,1
```

Lines 70 80 Data

```
90 DIMZ$(4) FORX=1TO4 READZ$(X) NEXT
```

Line 90 Dimensions array to hold collective description of objects (Z string)

```
95 DATAA,SOME,AN,THE
```

Line 95 Data

Display objects in location

```
230 CO=0 PRINT"IN THIS ROOM YOU SEE'
232 PRINT"————————————————"
```

Lines 230-232 Prints message Set object counter (CO) to nil

```
240 FORX=1TO10
```

Line 240 Starts loop

```
250 Z=VAL(LEFT$(OB$(X),1))
```

Line 250 Sets variables Z to equal 1st character of any object in OB string

```
260 IFOB(X)=1THENCO=CO+1 PRINTX" "Z$(Z)"
"MID$(OB$(X),2),
```

Line 260 If the object number (OB) =1 then print the collective description of the object denoted by the variable Z then print the remainder of the object description ignoring the first character

```
270 NEXT
```

Line 270 End of loop

```
280 IFCO=0THENPRINT"NOTHING"
```

Line 280 If object counter is = nil then print "nothing"

Display objects in inventory

```
330 A=0 PRINT PRINT PRINT"YOU ARE CARRY
ING "
335 PRINT"
```

Line 330 Sets variable A to nil Rem A is object counter for inventory held Prints message

```
340 FORX=1TO10
```

Line 340 Starts loop

```
350 X1=RND1
```

Line 350 Sets variable X1 to = A and 1 Rem bit flipping this controls the number of items of inventory which will be printed on any one line If the bit is set at 0 then the next item will be printed on same line

```
360 Z=VAL(LEFT$(OB$(X),1))
```

Line 360 Same as 250

```
365 IFOB(X)=0ANDX1=1THENPRINT
```

Line 365 Checks to see if object held (yes if object number = 0) then checks to see if bit is set to 1 (yes of X1 =1) of both positive then move print pos 1 on to next line

```
370 IFOB(X)=0THENA=A+1 PRINTZ$(Z)" "MID$
(OB$(X),2),
```

Line 370 If the object number (OB) =0 then proceed same as line 260

```
380 NEXT
```

Line 380 **End of loop.**

```
390 IFA=0THENPRINT"NOTHING "
```

Line 390 If A=0 Rem object counter of objects held then print "nothing"

```
400 PRINT"H." REM CURSOR LEFT
```

Line 400 Prints cursor left on full stop

```
505 PRINT:PRINT
510 PRINT"WHICH OBJECT NUMBER (1-10)"
515 PRINT"DO YOU WANT TO SWOP WPOUND."
520 PRINT"
```

Line 500-520 Prints message

```
550 INPUTF IFF<1ORF>10THEN510
```

Line 550 Get object number and check within range

```
560 IFOB(F)=1THENOB(F)=0 GOTO580
```

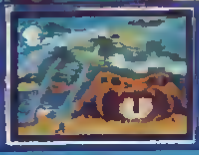
Line 560 If OB(P)=1 then OB(P)=0 I E if object chosen has a value of 1 then change it to a value of 0 it will then move from object display to inventory display or vice versa Now jump the next line

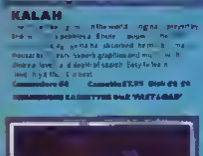
```
570 OB(F)=1
```

Line 570 Assumes that object chosen has a value of 0 then change it to 1

```
580 GOTO230 REM REPEAT ROUTINE
```

Line 580 Goto 230 Rem repeat the routine





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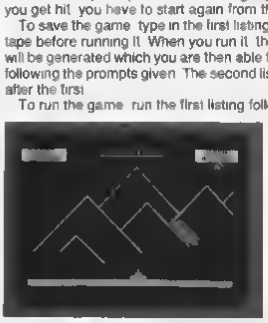
To save the game type in the first listing and save it to disk or tape before running It When you run it the machine code data will be generated which you are then able to save to tape or disk following the prompts given The second listing should be saved after the first

To run the game run the first listing followed by the second



```
10 LD=LD+1
11 IF LD=1THENLOAD ALIEN
12 POKE43,1 POKE44,P
```

Lines 10-12 Loads machine code program from tape or disk using device number 1 for tape or 8 for disk

```
20 GOSUB1000 POKE
25 255
30 GOSUB4000
32 IFPEEK(52231)=0THEN
35 IFPEEK(52231)=0THENGOTO3000
40 IFPEEK(52230)=0THENGOSUB4000
```

Lines 15-30 Initialises subroutine calls

```
100 SYS 49152
110 IF
1000 REM ** TITLE PAGE ***********
1002 POKE53
1005 PRINT'
1010 PRINT
1015 PRINT
1020 PRINT
1025 PRINT
1030 PRINT
1035 PRINT
1040 PRINT"
```

```
1045 PRINT'
1060 PRINT
1065 PRINT
1070 PRINT'
1075 PRINT'
```

Lines 1000-1075 Calls subroutine to enter sprite data into the memory

```
1077 GOSUB6000
```

Line 1077 Calls the subroutine to enter the sprite data into the memory

```
1080
1035 POKEV+4
1086 POKE
1090 H1$=
1094 H2$=
1096 PRINT"
```

Lines 1080-1096 Initialises the title page sprites

```
1100 FORI=0TO0STEP-1
1102 FORJ=0TO
1105 X=X-8 IFX=0THENX=255
1110 POKEV+4,X POKEV+10,
1115 C=C+1 IF
1117 POKEV+41 C POKE
1120 PRINT"
1200 NEXTI
1250 POKEV+21,0
```

Lines 1100-1250 Moves the title page sprites and the instructions flag

```
1300 GETI$ IF
1310 IF
1320 IF
1500 RETURN
```

Lines 1300-1500 Proves on of instructions option

```
2000 REM ** INSTRUCTIONS
2002 PRINTCHR$(14 REM SWITCH
2005 PRINT'
2010 PRINT
2015 PRINT
2020 PRINTTHE
2025 PRINTTHE
2030 PRINTTHE
2035 PRINTTHE
2045 PRINTTHE
```

```
2060 PRINTTAB(2)"FROM A VERY HARD METAL
IC ALLOY WHICH"
2065 PRINTTAB(4)"MAKES THEM DIFFICULT T
'DESTROY AND'
2065 PRINTTAB(4)"ALSO MAKES THEM DEADLY
SHOULD ONE'
2070 PRINTTAB(2 "EVUNLE WITH YOUR TANK
2080 PRINTTAB(5 "YOU ARE IN CONTROL
OF A TANK'
2090 PRINTTAB(2)"COMMAND. SE YOUR TANK
TO DESTROY'
2095 PRINTTAB(2 "A MANY ALIEN SPACESHI
S AS YOU CAN.
2100 PRINTTAB(5 "POINTS ARE AWARDED FOR
EACH HIT ON'
2105 PRINTTAB(2)"THE SPACESHIPS DES
OY THEM THEY
2110 PRINTTAB(2 "ONLY BE HIT TEN TIM
2115 PRINT"
2120 GETA$ IFA$=  THEN2120
2200 PRINT"
2210 PRINT
2215 PRINT"
2220 PRINTTAB(5 POINT  ARE
AWARDED FOR'
2225 PRINTTAB(2 'EACH SPACESHIP DESTROY
D."
2230 PRINTTAB(5 "THE TANK ARE
FOR EACH'
2235 PRINTTAB(14 '1000 POINT .'
2237 PRINTTAB(5 'WITH THE YOUR TICK
N COST 2.'
2240 PRINTTAB(12 "
2400 PRINT"
```

Lines 2000-2400 Displays instructions

```
2405 REM
2410 GETA$
2411 FL=0:A=1
2420 IFFL/2=INT(FL/2)THENPRINTLEFT$(H$
,TOP(1)
2424 IFFL/2=INT(FL/2)THEN PRINTLEFT$ A$
(13)THR(13)
2430 FORJ=0TO200 NEXT
2435 IFA$= "THEN2410
2450 FORI=0TO1000 NEXT
2490 PRINT"CHR$(142  REM SWITCH TO UP
PER CASE
2500 RETURN
```

Lines 2405-2500 Displays a flashing message

```
3000 REM ** DECLARATION OF VARIABLES **
3010 HI=0 DIMSC$(5),SC(5) FORI=1TO5 SC$
(I)="**********' SC(J)=0 NEXTI
4020 FORI=53248TO52241 POKEI,M NEXTI
4030 PRINT"2 POKE53248,11 POKE53280,1
4040 POKE53281,0 POKE53282,4
4050 FORI=53248TO53250 POKEI,M NEXTI
4060 POKE53242,1
```

Lines 4000-4060 Gives declaration of variables

```
4070 PRINT"SCORE
      HIGH
4080 PRINT"
```

```
4090 PRINT"
4100 PRINT"
4110 PRINT"
4125 PRINT
4130 PRINT"
4135 PRINT
4140 PRINT
4145 PRINT
4150 PRINT
4155 PRINT
4160 PRINT
4165 PRINT
4170 PRINT
4175 PRINT
4180 PRINT
4185 PRINT
4190 PRINT
4195 PRINT
4200 PRINT
4210 PRINT
4220 PRINT
```

Lines 4070-4320 Prints onto the screen

```
4330 POKE1097,PEEK(
4340
4350 POKE1097,PEEK(52240)+
4350 POKE1097,PEEK(52240)+176
4360 POKE52243,0 POKE52245,
4370 POKE52248,1 POKE52250,0
4370 POKE52225,103 POKE
4370 POKE52243,0
4372 POKE52224,
4380
```

Lines 4330-4372 Pass variable parameters to machine code

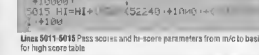
```
4705 REM ** GEN INITIALISATION ********
4710 POKE
4715 POKE2041,246 POKE
4720 POKE53524  PEEK(53248)  POKE
4730 V=INT(RND(1)*164+52 POKE53248,V
4740 YU=INT(164*RND(1)+52 POKE53250,YU
4750 NU=PEEK(
4760 COLLISION DETECTION REGISTER
4770 POKE
4780 RETURN
4800 REM ** END OF GAME ***********
```

Lines 4735-4780 General initialisation

```
5010 POKE
```

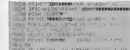
Lines 5005-5010 Change screen colour and switch sprites off

```
5010
```



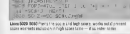
```
*100)
5013 HI=[illegible]3E+10000+[illegible]
*10000Y
5015 HI=HI+[illegible](52240+1000+[illegible]
+100
```

Lines 5011-5015 Pass scores and hi-score parameters from m/c to basic for high score table



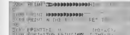
```
[illegible] PRINT"[illegible]YOUR SCORE=";SC
[illegible] IFSC=HITHENPRINT"[illegible]
[illegible] HIGH [illegible]
[illegible] PRINT"[illegible]HIGH SCORE=";H
[illegible]
[illegible]
[illegible] NEXT[illegible]
[illegible] PRINT"[illegible]ENTER[illegible]
[illegible]
[illegible] IF LEN[illegible]THEN[illegible]
[illegible] IFZ=5THEN[illegible]
[illegible] FORJ=4TO[illegible]STEP[illegible]
[illegible]=SC$(J):NEXT[illegible]
5080 SC(Z)=SC:SC$(Z)=N$
```

Lines 5020-5080 Prints the score and high score, works out if present score warrants inclusion in high score table — if so enter name



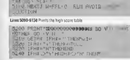
```
[illegible] PRINT"[illegible]HI[illegible]
[illegible] PRINT"[illegible]
[illegible] PRINT"IN THE [illegible]
[illegible] PRINTTHE[illegible]
[illegible] FORJ=1TO5:PRINT"[illegible]THE[illegible]
[illegible]SC$([illegible]
[illegible] NEXTJ:W=PEEK(0):REM AVOID[illegible]
[illegible]CTION
```

Lines 5090-5130 Prints the high score table



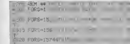
```
5200 PRINT"[illegible]DO Y[illegible]
OTHER GO (Y/N)"
5210 GETA$:IFA$=""THEN5210
5220 IFA$="Y"THEN[illegible]
5230 IFA$="N"THENEND
5240 IFA$<>"Y"ANDA$<>"N"THEN[illegible]
```

Lines 5200-5240 Gives option for another game

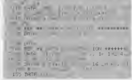


```
[illegible] REM **[illegible]
[illegible] FORS=1[illegible]
[illegible] FORS=15[illegible]
6815 FORS=156[illegible]
6820 FORS=15744[illegible]
6825 FORS=15[illegible]
[illegible] RE[illegible]
```

Lines 6750-6800 Subroutine to enter sprite data into memory



```
7000 REM ** DATA FOR AL[illegible] ******
7005 DATA,,3,231,192,6[illegible]
[illegible]27,,216,53,,172,1[illegible]
7010 DATA126,91,177,255,1[illegible],97,153[illegible]
[illegible]128,97,102,134,17[illegible]
7015 DATA187,109,60,102,54,,108,27[illegible]
[illegible]7,195,224,,,,,
7020 DATA,,3,231,192,6,195,96,13,12[illegible]
[illegible]103,108,,54,216,
7025 DATA[illegible],176,13,96,,6,,,,36,,6[illegible]
[illegible]216,,27,108,,54,54,[illegible]
[illegible]
```



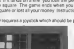
```
[illegible]ION ******
[illegible]
155 DATA[illegible]
```

Lines 7000-7155 Sprite data (all zeroes are omitted)

SLIDER

Slider by R Blunt is a computerised version of the old shove a penny game you have to push a penny onto a pattern of squares. If it lands on a line you lose the penny otherwise you gain the square. The game ends when you've either captured every square or lost all your money. Instructions are given in the game.

Slider requires a joystick which should be plugged into port 2



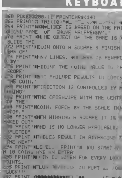
```
105 POKE53280,12:POKE53281,11:PRINT"[illegible]
110 PRINTTAB(7)"[illegible]
111 PRINTTAB(7)"[illegible]
[illegible] PRINTTAB([illegible]
113 PRINTTAB(7)"[illegible]
114 PRINTTAB(7)"[illegible]
120 PRINTTAB(12)"[illegible]BY R.BLUNT 1984"
```

Lines 106-120 Displays the title screen

```
155 AD=54277:SR=54278:HI=[illegible]:LO=54272
W=54276:VO=54296
158 FORN=LOTOVO:POKEN,0:NEXT
160 V=53248:L=5427[illegible]:HS=1000:JS=56320
165 POKEV+21,5:POKEV+39,1:POKEV+41,7
170 POKE2040,192
175 FORN=0TO62:READA:POKE12288+N,A:NEXT
[illegible] FORN=0TO62:READA:POKE12352+N,A:NEXT
[illegible] FORN=0TO62:READA:POKE12416+N,A:NEXT
[illegible] FORN=0TO62:READA:POKE12480+N,A:NEXT
[illegible] FORN=0TO62:READA:POKE12544+N,A:NEXT
[illegible] FORN=0TO62:READA:POKE12608+N,A:NEXT
```

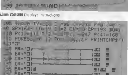
Lines 155-188 Sets up sound, sprites and hi score

KEYBOARD KAPERS



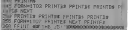
```
60 POKE53280,1 PRINTCHR$(14)
62 PRINT"J TAB(10)"[illegible]"
264 PRINT"[illegible]LIDER IS BASED ON THE FAIR
GROUND GAME OF SHOVE HALFPENNY."
270 PRINT"[illegible]HE OBJECT OF THE GAME IS [illegible]
SLIDE THE
72 PRINT"[illegible]COIN ONTO A SQUARE & FINISH [illegible]
EAR OF"
74 PRINT"[illegible]ANY LINES. [illegible]LESS IS REWARDE
D BY"
76 PRINT"[illegible]ADDING THE COINS VALUE TO THE
SCORE"
78 PRINT"[illegible]BUT FAILURE RESULTS IN LOSING
THE COIN."
[illegible] PRINT"[illegible]IRECTION IS CONTROLLED BY [illegible]
[illegible]ING"
[illegible] PRINT"[illegible]THE CROSSWIRE WITH THE CENTR
OF THE"
[illegible] PRINT"[illegible]COIN. FORCE BY THE SCALE IN
[illegible]TOP."
[illegible] PRINT"[illegible]N WINNING A SQUARE IT IS [illegible]
[illegible]KED OUT"
[illegible] PRINT"[illegible]AND IS NO LONGER AVAILABLE.
[illegible]PLETED"
[illegible]2 PRINT"[illegible]TABLES RESULT IN ADVANCING TO
THE NEXT"
294 PRINT"[illegible]LEVEL. PRINT"[illegible] YOU START [illegible]
H 10 COINS AND AN EXTRA"
295 PRINT"[illegible]IN IS GIVEN FOR EVERY 1000
POINTS.
[illegible]5 PRINT"[illegible]LU[illegible] TILT IN PORT 2. [illegible]
LUCK!!"
97 PRINT"[illegible]
",
[illegible]9 [illegible])AND[illegible]
```

Lines 250-299 Displays instructions



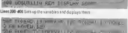
```
[illegible] TV=[illegible] C[illegible]=96 [illegible] P=[illegible]
[illegible] SP=[illegible] CV=[illegible] CP=193 B0=[illegible]
10 P(1)=[illegible] P(3)=[illegible]247 P(4)=160
15 POKE5[illegible]CP PRINTCHR$(
[illegible])"J"
[illegible] A$="J[illegible]"
[illegible] B$="J[illegible]"
[illegible] C$="J[illegible]"
[illegible] D$="J[illegible]"
[illegible] E$="J[illegible]"
[illegible] F$="J[illegible]"
[illegible] PRINTA$
[illegible] FORN=1TO3 PRINTB$ PRINTB$ PRINTB$ P
[illegible]C$ NEXT
[illegible] PRINTB$ PRINTB$ PRINTB$ PRINTD$
[illegible]5 FORN=1TO7 PRINTE$ NEXT PRINTF$
360 PRINT"[illegible] THE 25[illegible]"
400 GOSUB1110 REM DISPLAY SCO[illegible]
```

Lines 300-400 Sets up the variables and displays them



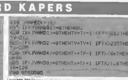
```
[illegible]
```

Lines 500-510 Initiates sound, displays sight and coin



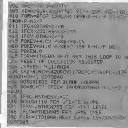
```
[illegible] NEXT SP=1649
[illegible]
560 POKESP,P(J) P[illegible]SP+C,7[illegible]
```

Lines 550-560 Displays the power



```
610 [illegible]PEEK([illegible])
615 IF([illegible]AND16)=0THEN802
620 IF(JVAND1)=0THENTY=TY-1 IF[illegible]12THEN
TY=[illegible]
625 IF(JVAND2)=0THENTY=TY+1 IFTY>235THEN
TY=[illegible]
630 IF(JVAND4)=0THENTX=TX-1 IFTX<66THENT
X=66
635 IF(JVAND8)=0THENTX=TX+1 IFTX>126THEN
TX=126
700 GOTO505
```

Lines 600-700 Checks joystick direction

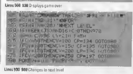


```
[illegible]-TY
805 XI=X/SQR(X[illegible]2) YI=Y/SQR(X[illegible]Y↑2)
810 FORN=0TOP CX=[illegible]XI*[illegible](P-N)/P[illegible]
[illegible]*8*(P-N)/P
811 IFCX<0THENCX=0
812 IFCX>255THENCX=255
[illegible] IFCY[illegible]0THENCY=0
[illegible] POKEV+4,CX POKEV+5,CY
[illegible] POKEV+31,0 POKEVO,15*(P-N)/P NE[illegible]
[illegible] POKEW,0
[illegible]5 FORN=1TO200 NEXT REM THIS LOOP TO AL
LOW RESET OF COLLISION REGISTER
[illegible]5 Z=PEEK([illegible]1)AND4
[illegible] IFZ=4ORCY<42ORCY>170ORCX<160RCX>17[illegible]
THENCN=CN-1 GOTO840
[illegible] GOSUB1005 REM BLANK SQUARE
[illegible] SC=SC+C[illegible] IFSC=[illegible]THEN[illegible]N=CN+1[illegible]
[illegible]
[illegible] IFSC>HSTHENHS=SC
[illegible]0 GOSUB1110 REM UPDATE SCORE
[illegible]1 IFSQ=20THEN255 REM NEXT LEVEL
[illegible]46 IFCN=0THEN905 REM GAME OVER
[illegible]0 FORN=1TO1000 NEXT CX=[illegible] CY=210[illegible]
[illegible]505
```

Lines 800-850 Moves the coin

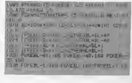
```
[illegible] TAB([illegible])"[illegible]GAME[illegible]"
[illegible] PRINT"[illegible]"TAB 28)"PRESS FIRE [illegible]
[illegible] FOR NEW GAME"
[illegible] GOTO[illegible]
```

Lines 900-930 Displays game over



```
[illegible]TAB([illegible]"[illegible]E"
[illegible]"[illegible]FOR"
[illegible](28)"[illegible]NEXT LEVEL"
[illegible](PEEK(JS)AND16)<>0THEN970
[illegible]
[illegible]THENCY=100 CP=194 GOTO[illegible]
[illegible]THENCY=150 CP=195 GOTO[illegible]
[illegible]THENCY=200 CP=196 GOTO[illegible]
978 IFCY[illegible]THENCY=250 CP=197 GOT[illegible]
980 POKE[illegible]
```

Lines 950-980 Changes to next level



```
1005 [illegible]
[illegible],172[illegible]
[illegible]
[illegible]
[illegible]+40*INT (CY[illegible]
[illegible]
[illegible]THENBL=BL+40
[illegible]THENBL=BL-40
[illegible]BL=BL+1
[illegible]THENBL=BL-1
[illegible] POKEBL-41,160 POKE[illegible]40,160 POKE[illegible]
[illegible],160
1030 POKEBL-1,160 POKEBL[illegible]160 POKEBL+1[illegible]
```

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```
1040 POKEBL+40,160:POKEBL+40,160:POKEBL+
41,160
1050 POKEBL-1+C,4 POKEBL-40+C 4 POKEBL+
39+C,4
1060 POKEBL-1+C,4 POKEBL+C 4 POKEBL+1+C
4
1070 POKEBL+39+C,4 POKEBL+40+C 4 POKEBL
+1+C 4
1075 SQ=SQ+1
1080 RETURN
```

Lines 1080-1080 Plays the notes and fills the square 1

```
1110 PRINT"[illegible]"TAB(28)"[illegible]"HS
1120 PRINTTAB(28)"[illegible]LORE"SC
1130 PRINTTAB(28)"[illegible]LOINS"CH [illegible]
1140 RETURN
```

Lines 1100-1140 Displays the score and so on

```
5001 DATA0,0,0,0,0,0,0,0,0,0,0,0
,4,0,0,24,0,0,4,0,0,24,0 1,255,128 1
5002 DATA255,128 0,24,0,0 24,0,0,24,0,0
24,0,0,0,0,0 0,0,0,0,0,0,0,0,0,0,0,0
```

Lines 5000-5002 Sights the data

```
5100 DATA[illegible]
3,255,[illegible]
5102 DATA[illegible]12,14,27,112 1
219,112,15,0,[illegible],7,255,224
5103 DATA3,2[illegible]126,0,8,0
,0,0,0,0,[illegible]
```

Lines 5100-5103 Coin data level 1

```
[illegible]0,0,0,0,0,126,0,[illegible]
,0,0,[illegible],255,224,15,255,240
[illegible] DATA12,132,48 30 181,184 30,181 [illegible]
[illegible],164,30,181,194,14,132 48
[illegible] DATA15 255,240,7,255,224 7,255 [illegible]
[illegible]0,0,[illegible]0,0,0,0,0,0,0,0
```

Lines 5200-5203 Coin data level 2

```
[illegible]0,0,0,0,0,0,0,0,0,0,0,0
,5,[illegible]240,15,255,[illegible]
[illegible] DATA[illegible]
[illegible]255,[illegible]
```

Lines 5300-5303 Coin data level 3

```
5401 DATA[illegible]
,240,31,255,[illegible],248,61,[illegible]
5402 DATA56,[illegible],22,127,[illegible]
,90,222,12[illegible],56,66,28,[illegible]
5403 DATA25[illegible],31,255,[illegible]
240,7,[illegible],0,[illegible]
```

Lines 5400-5403 Coin data level 4

```
5501 DATA0 [illegible]
55,248 31,255,248,[illegible]
5502 DATA120,66,3[illegible]
248 1,2 223,251,[illegible]
5503 DATA127 255,[illegible]
,31,255,24[illegible]
[illegible]
```

Lines 5500-5504 Coin data level 5

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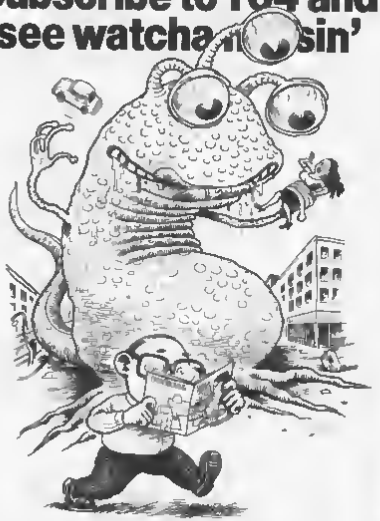

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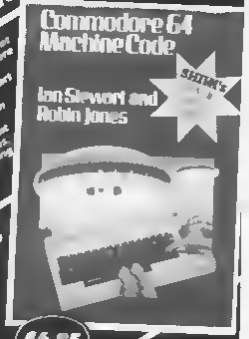

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TALKIN' 64

Listen to any group of adventure fans, and the phrase MUD is likely to feature prominently in the conversation. A multi-user adventure game running on a mainframe computer, 64 users are some of the few people currently able to play the game. Phil Z Manchester asked one of MUD's authors to explain

Coming up with a new idea for a computer game may not be a passport to the Millionaire's Club — but it can at least take you part of the way. The tired and slightly battered microcomputer software industry has spent much of this year waiting for the 'Next Big Thing' — with little sign of its arrival.

Until now, possibly. Though the software business is not the place to find it. The computer science department at Essex University's. Amongst the artificial intelligence, systems natural language research projects and computer based training systems there's a hot little item called Mud. Mud stands for Multi-User Dungeons and dragons, and is a flash version of the Hobbit or Valhalla — a role playing adventure game. What's this got to do with 64 users? Quite simply that you are part of a privileged minority of computer users actually able to play it.

Mud is a major feature of the newly inaugurated Compunet service for 64 users. The only other Mud players around at the moment are those able to dial up the game running on Essex University's DEC system — an expensive business.

The connection costs are the main barrier to getting more people playing Mud, commented Richard 'The Arch Wizard' Bartle, co-author of the game.

So what's it all about?

As the name suggests, Mud is a multi-player version of the adventure game Dungeons and Dragons. But once you get your teeth into it, it's far more — combining the fascination of an adventure game with the spontaneity of on-line chatting as you meet other players in the game.

Mud also offers a much more sophisticated dungeon than anything available on a micro at present. The program runs on a giant DEC System 10 super mini-computer and, according to Bartle, can handle as many as 40 players at once. That is probably the limit with the game at its present size, but we can always make it bigger, Bartle observed. Like Valhalla and Hobbit, the game consists of a series of rooms in which treasure may or may not be hidden. Commands are fed through the network to the game and you can move about inside the dungeon in much the same way you might in any adventure game.

Where it comes into its own, however, is in its ability to allow players to talk to each other, form alliances, exchange items of treasure and, if you happen to be lucky, learn the secrets of the dungeon from other players.

The background to Mud is Essex University's extensive artificial intelligence research — the university is ranked second only to Edinburgh in the field. Bartle is involved in a project to look at artificial intelligence systems as applied to planning projects. I was taken on at Essex under the University Grants Commission scheme to provide information technology lectures", said Bartle. But despite this academic background, Bartle is not slow to see the market for Mud. The commercial rights to the game have been grabbed by Century Publishing, the computer book publishers and through them the deal with Compunet has been negotiated.

The problem, for the time being anyway, Mud playing is going to be expensive. Compunet is charging a £5 per month entry fee and the enormous sum of £3 per hour to play Mud on Compunet. This is probably cheaper than going through PSS to get to the Essex University machine, but with the telephone charges as well, it is still going to be a costly business.

"We are considering rewriting the Mud system next year if we can get the finance to do it. This might make it more widely available", said Bartle.

When this happens, Mud is likely to become a big seller — mainly because it is so addictive (ask the editor of Your 64 — he's a regular player).

One player in Wales became so obsessed with Mud that she played from midnight till dawn every night.

"When she received a £3000 phone bill for eight months, she had to stop", exclaimed Bartle.

So, if you join Compunet and are looking for a wholly different experience, it might be worth joining for a month to see what it's like.

According to Nick Green at Compunet, its version should be up and running by the time this hits the book stalls. Members just select it as an option through Compunet when they will be transported through a gateway into the wonderful world of Mud. Green explained that the appropriate software to access Mud is stored at the main computer end and is loaded into your Commodore modem.

For the technically minded it is a teletype emulator. Other microcomputer users will have to wait until someone else puts up an appropriate service — doesn't that make you feel smug?

NICK DAVIES

Richard 'The Wiz' Bartle inside weird and wonderful powers in your telephone

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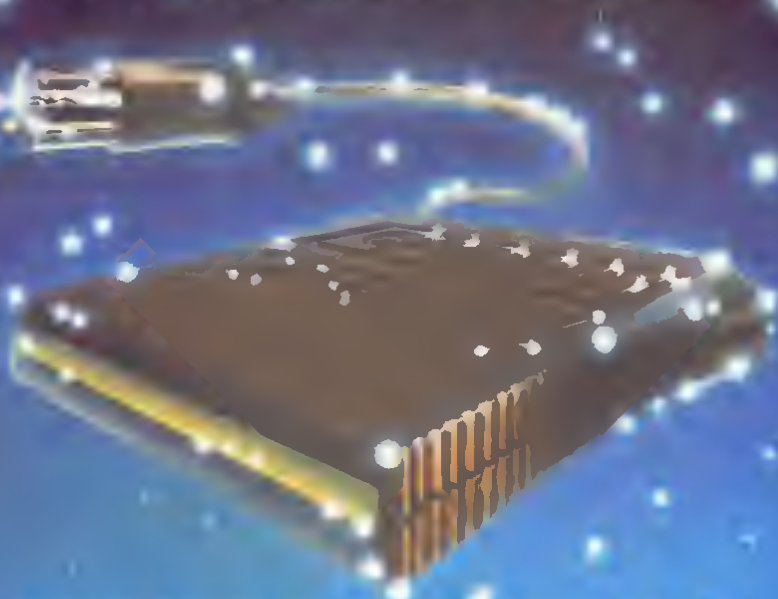

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